Special Problems and Supercritical HEC-2 Model

RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY

FCD 93-06

Wash A
Wash A South
Wash F
Wash I

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

Burgess & Niple, Inc.
5025 East Washington Street
Phoenix, AZ 85034
(602) 244-8100

DRAFT

REGISTERED PROFESSIONAL ENGINEER (CIVIL)
CERTIFICATE NO.
18055
LARRY D.
CULLER
Date Signed 8/24/94
ARIZONA, U.S.A.

August 1994

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Flood Control District of MC Library
Please Return to
2801 W. Durango
Phoenix, AZ 85009

SECTION 1: SPECIAL PROBLEMS

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DEFINITIONS

A small channel is shown as a stream symbol on the topographic map, scale 1:2400 with a 2 foot contour interval.

A small unmarked channel is shown as a depressed contour with no stream symbol on the topographic map, scale 1:2400 with a 2 foot contour interval.

SPECIAL PROBLEMS - GENERAL

Special Problem No. 1

Split flows appear on the cross sections at several locations. Where not specifically discussed as a special problem, the average height of the ground on small islands formed by the split flow is less than 1 foot above the 100-year flood elevation, or the island is very small. Since the height of most of these islands is less than the accuracy of the mapping, they are shown as being flooded.

SPECIAL PROBLEMS

Wash A

Special Problem No. 1A

<u>Wash A, Breakout at Cross Section 2.494</u> (see Sheet 5 of 6)

Water in Wash A overtops its drainage divide to the south (right overbank). Wash A therefore conveys a portion of flow to the adjacent watershed. Rating curves for Cross Section 2.494 and for the south drainage divide which is overtopped were developed, plotted, and added together to determine the flow that remains in Wash A and the flow that leaves Wash A. Approximately 210 cubic feet per second (cfs) is diverted from Wash A and does not re-enter Wash A. Therefore, all discharges in Wash A below Cross Section 2.494 were decreased by 210 cfs. At the Wash A and Wash A South split, where 50 percent of the flow goes into each wash, the decreased flow of 210 cfs was also divided equally between Wash A and Wash A South. (Refer to the supporting calculations at the end of this section.)

Of the 210 cfs leaving Wash A, 150 cfs leaves below Cross Section 2.494 and 60 cfs leaves at Cross Section 2.494. Therefore, the discharge at Cross Section 2.494 is 1,310 cfs minus 60 cfs, or 1,250 cfs.

Special Problem No. 2A

<u>Wash A, Cross Section 2.105</u> (see Sheet 5 of 6)

A small wash ends just downstream of this cross section in Wash A's channel, causing a split flow condition downstream of this cross section. This small wash runs parallel to Wash A and has other small washes entering which contribute to its flow. The small wash also splits in several locations. The small wash does re-enter Wash A via Wash A South just above Cross Sections 0.599 and 0.411.

Since the small wash conveys a portion of Wash A flow, that amount of flow was determined. Rating curves for Cross Section 2.105 and at the location where the flooding of the small wash separates from Wash A were developed, plotted, and added together to determine the flow that remains in Wash A and the flow that leaves Wash A. Approximately 60 cfs is diverted from Wash A

and re-enters Wash A South at Cross Sections 0.599 and 0.411. Since this discharge is less than 6 percent of the total flow and causes a depth of flooding in the small channel of less than 1 foot and since the small wash receives flow from other washes and has split flow in several locations, the flooded area along the wash will not be determined. In addition, the flow in Wash A will not be reduced to account for this small amount of split flow that leaves Wash A. (Refer to the supporting calculations at the end of this section.)

Special Problem No. 3A

<u>Wash A, Cross Section 1.806</u> (see Sheet 5 of 6)

At this cross section, a minor breakout occurs at the left end of the cross section. The depth of flow over the divide is about 0.2 feet. Using a weir spillover length of 100 feet, the estimated breakout flow is 27 cfs, which is less than 3 percent of the total flow. Because this flow is small and the breakout depth is less than the accuracy of the mapping, it is assumed that for this analysis there is no breakout flow and all the flow remains in Wash A.

Special Problem No. 4A

<u>Wash A and Wash A South Confluence Area</u> (see Sheet 5 of 6)

Although the low flow confluence of Wash A and Wash A South occurs at Wash A River Mile 1.586, the discharge is changed from the value below the confluence to the value above the confluence at Cross Section 1.472. Cross sections upstream of this point include geometry of both Wash A and Wash A South because flow overtops the ridge separating the two washes. Therefore, the total flow was used at those cross sections. Cross sections downstream of Cross Section 1.472 include only the flow from the respective washes.

Special Problem No. 5A

<u>Wash A, Cross Section 0.902</u> (see Sheet 3 of 6)

At Cross Section 0.902, there is a small breakout on the left divide. Since the height of the breakout is less than 0.2 feet higher than the ground (which is less than the accuracy of the map), there will be no breakout flow calculated at this location.

Special Problem No. 6A

<u>Wash A and Wash A South Confluence Area</u> (see Sheet 3 of 6)

Although the low flow confluence of Wash A and Wash A South occurs at Wash A River Mile 0.682, the discharge is not changed from the value below the confluence to the value above the confluence until Cross Section 0.820. Cross sections downstream of this point include geometry of both Wash A and Wash A South because flow overtops the ridge separating the two washes in this area. Therefore, the total flow was used at this cross section. Cross sections upstream of Cross Section 0.821 include only the flow from the respective washes.

Special Problem No. 7A

<u>Wash A, Cross Section 0.550</u> (see Sheet 3 of 6)

Water in Wash A overtops its drainage divide to the south (right overbank). Wash A therefore conveys a portion of the flow to the adjacent watershed. A rating curve for the divide was developed, and the flow diverted is estimated to be about than 30 cfs, which is less than 3 percent of the total flow. Because the flow is small and the depth of flow at the divide is less than 0.3 feet (which is less than the accuracy of the map), it is assumed that no flow is being diverted. The flooded area will just extend to the watershed divide. (Refer to the supporting calculations at the end of the section.)

SPECIAL PROBLEMS
WASH A SOUTH

Special Problem No. 1AS

<u>Wash A South, Cross Section 0.512</u> (see Sheet 3 of 6)

Water in Wash A South overtops its drainage divide to the north (left overbank). Therefore, Wash A South conveys a portion of the flow to the adjacent watershed of Wash A.

Water in Wash A South also overtops the divide to the south which separates Wash A South and Tributary 2 of Wash A South.

Rating curves for Cross Section 0.512, the north divide, and the south divide were developed, plotted, and added together to determine the flow that remains in Wash A South and the flow that leaves the channel of Wash A South. Approximately 80 cfs is diverted from Wash A South's channel with 55 cfs going to Wash A to the north and 25 cfs going south to Tributary 2 of Wash A South. Therefore, 55 cfs will be added to Wash A Cross Sections 0.820 through 1.208, and 80 cfs will be subtracted from Wash A South Cross Section 0.512. As Tributary 2, which receives the 25 cfs from Wash A South, rejoins Wash A South at the next downstream cross section (Cross Section 0.411), flows at Wash A South Cross Sections 0.121 through 0.411 will be reduced by only 55 cfs. (Refer to the supporting calculations at the end of this section.)

SPECIAL PROBLEMS

WASH F

Special Problem No. F1

<u>Wash F, Cross Section 0.790</u> (see Sheet 3 of 6)

At this cross section, the flow is split between flow in Wash F and flow in a small channel just right of Wash F. Since the flow is not split in the cross section upstream or downstream, there was insufficient detail to warrant further calculation with respect to the flow or the profile in the split channel.

Special Problem No. F2

<u>Wash F, Cross Section 0.683</u> (see Sheet 3 of 6)

At this cross section, the flow is split between flow in Wash F and flow in a small channel just left of Wash F. Since the flow is not split in the cross section upstream or downstream, there was insufficient detail to warrant further calculation with respect to the flow or the profile in the split channel.

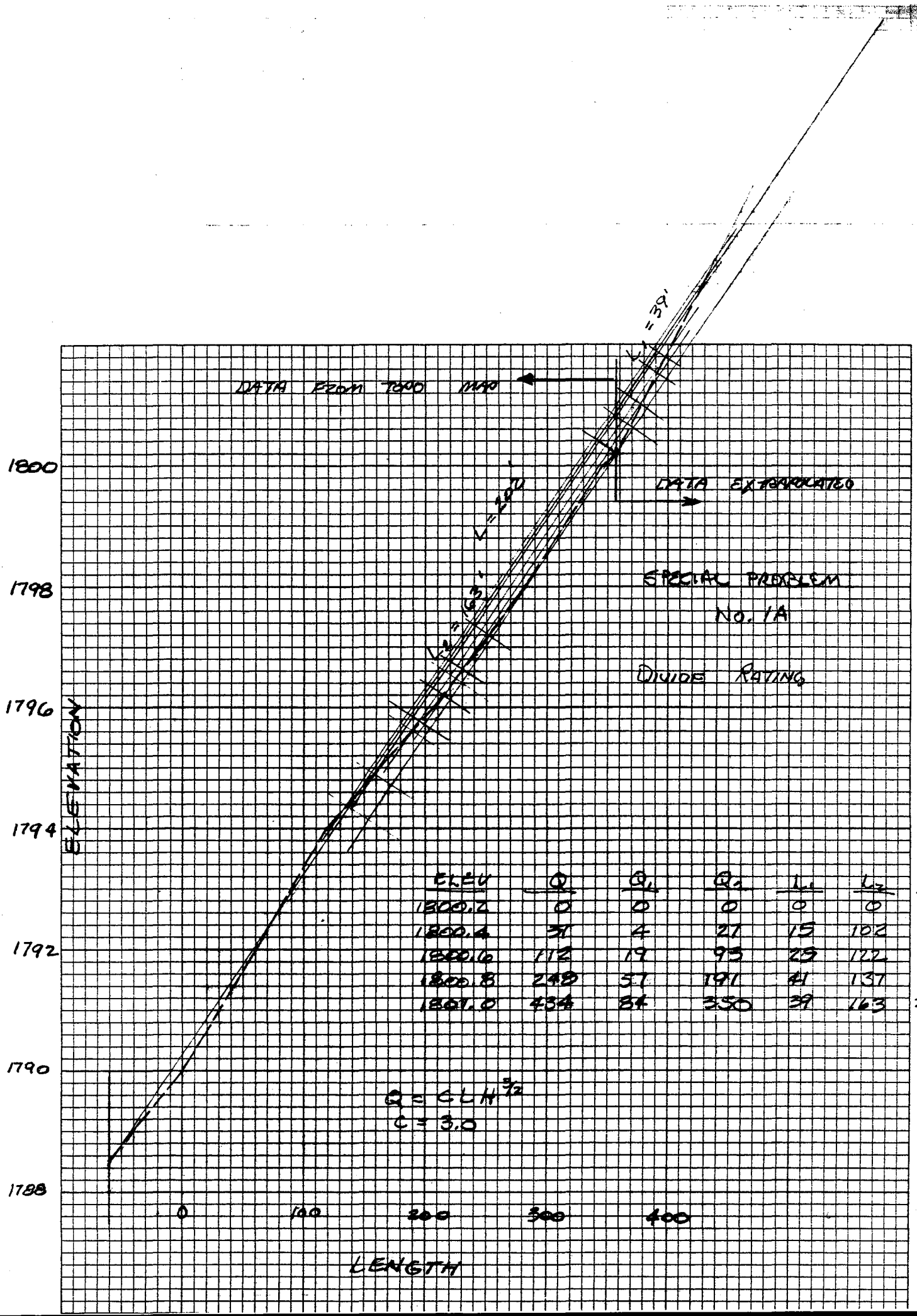
Special Problem No. F3

<u>Wash F, Cross Section 0.480</u> (see Sheet 4 of 6)

This cross section location crosses a channel that does not contribute any flow to Wash F. Because of the cross section location, effective flow contours were included in the model to represent the actual flow conditions of Wash F at this location.

SUPPORTING CALCULATIONS

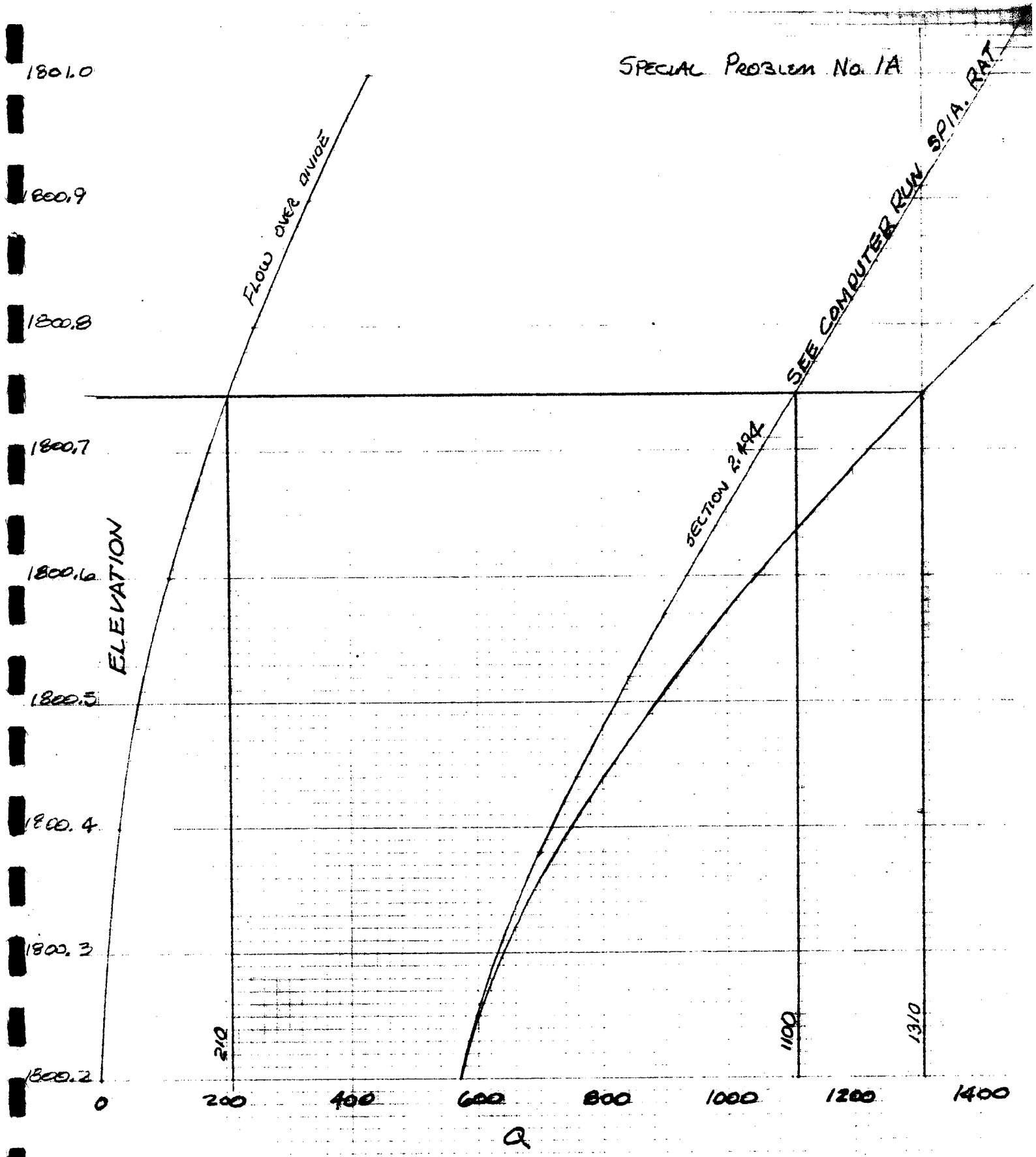
SPECIAL PROBLEM NO. 1A



ELEV	Q	Q_1	Q_2	L_1	L_2	h
1800.2	0	0	0	0	0	0
1800.4	31	4	21	15	102	117
1800.6	112	19	93	29	122	147
1800.8	248	57	191	41	137	178
1801.0	434	84	350	39	163	202

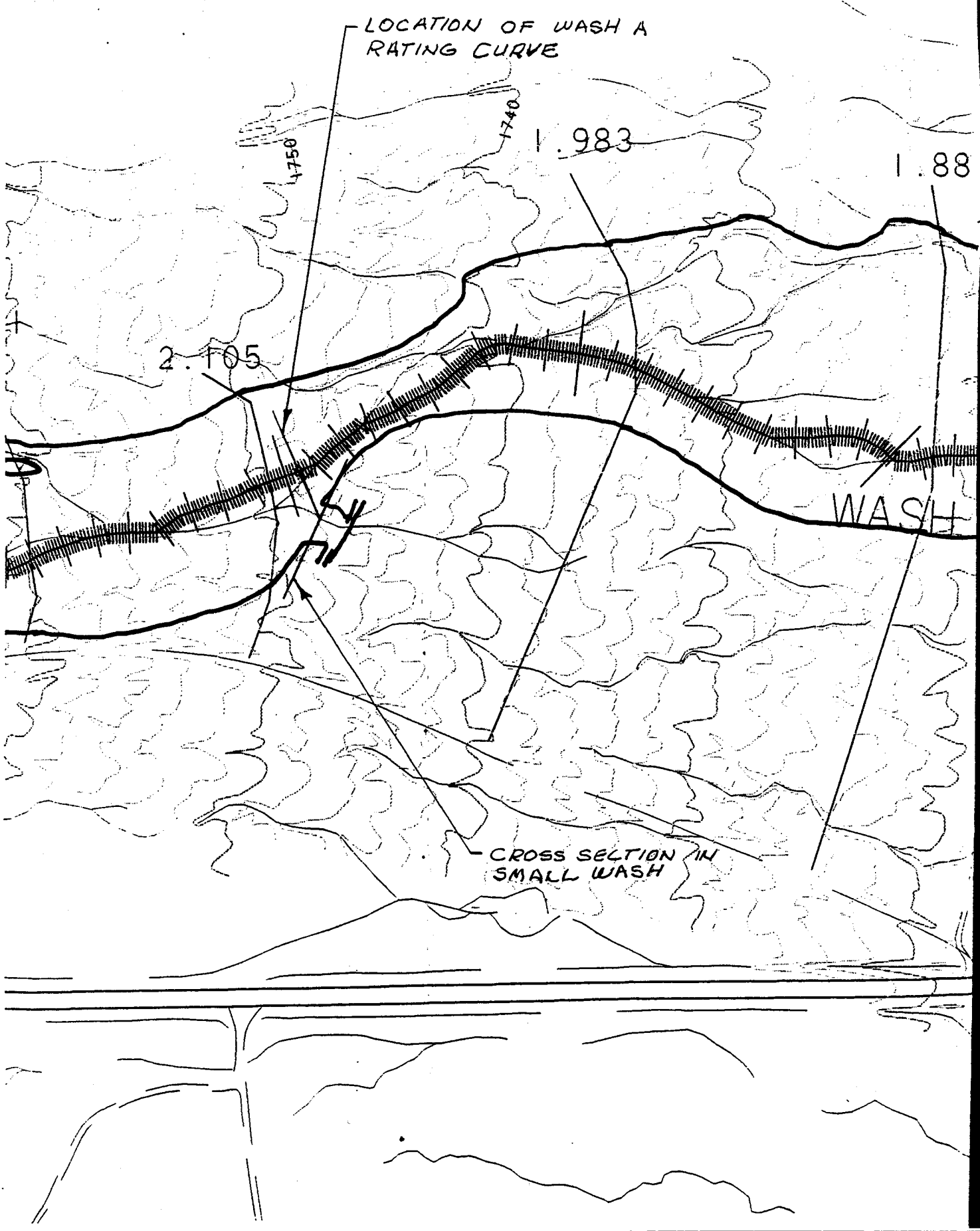
10 X 10 THE 7 X 10 KEUFFEL & ESSER CO. MADE IN U.S.A.

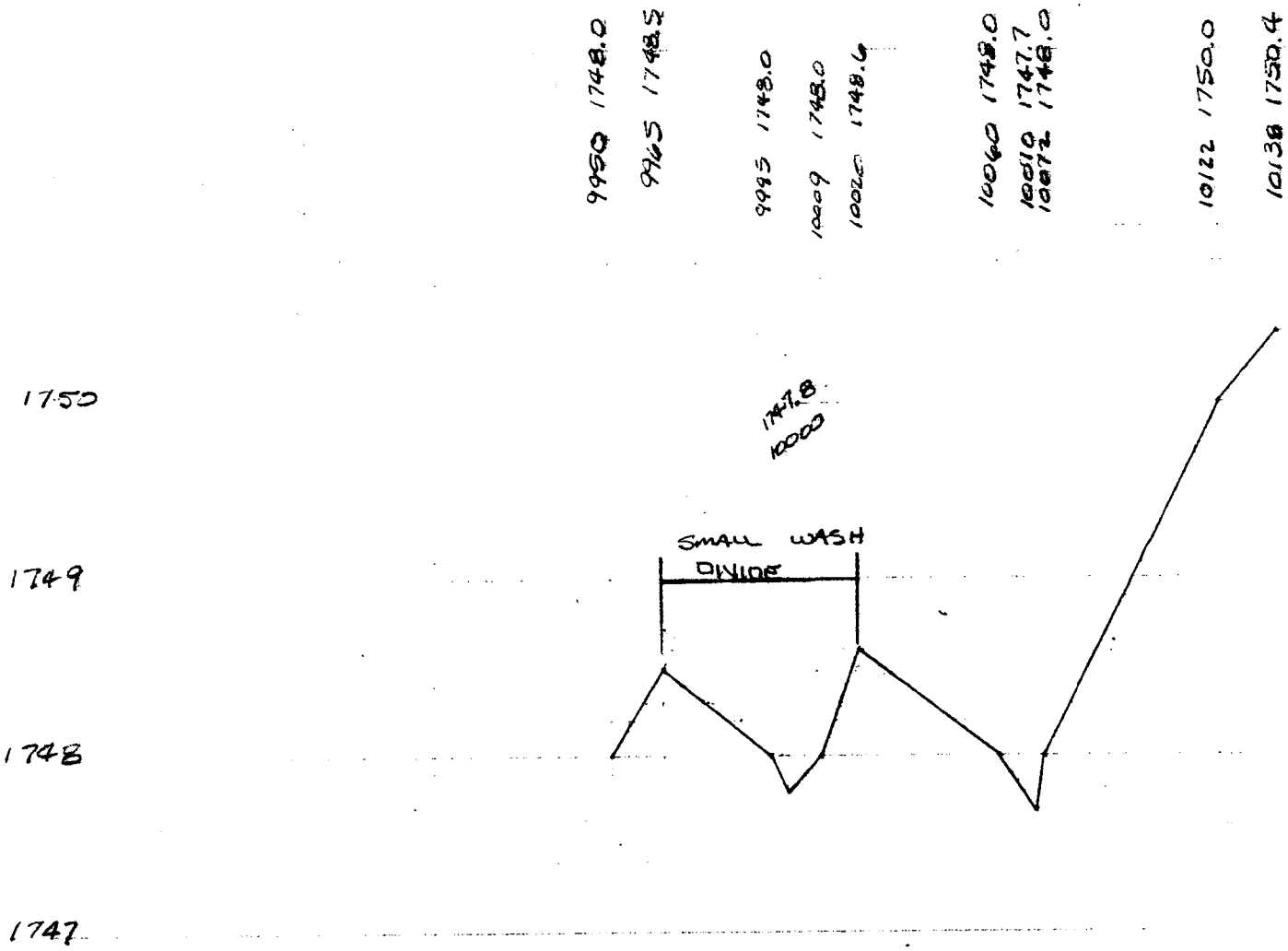
SPECIAL PROBLEM No. 1A



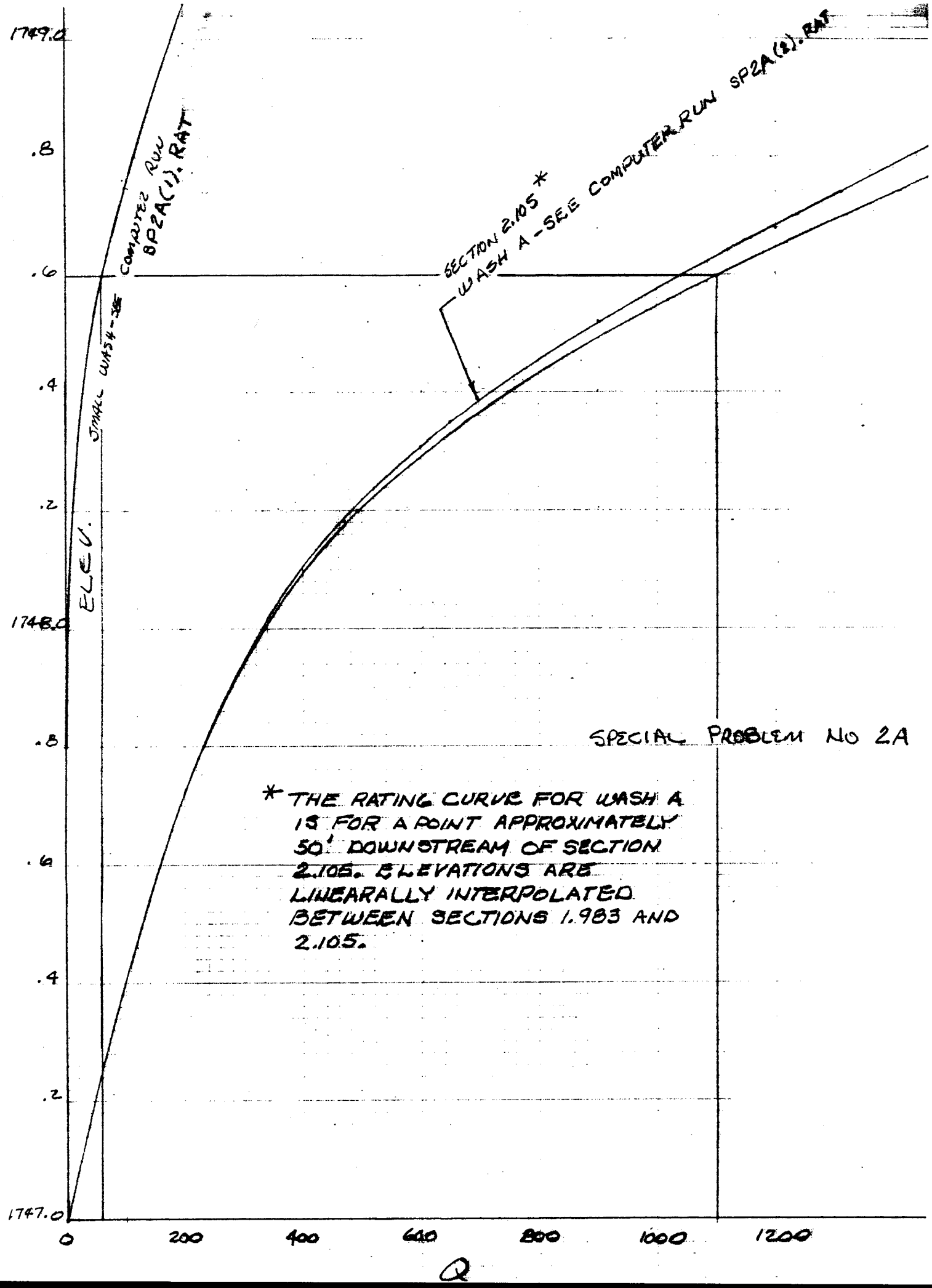
SPECIAL PROBLEM NO. 2A

SPECIAL PROBLEM NO. 2A





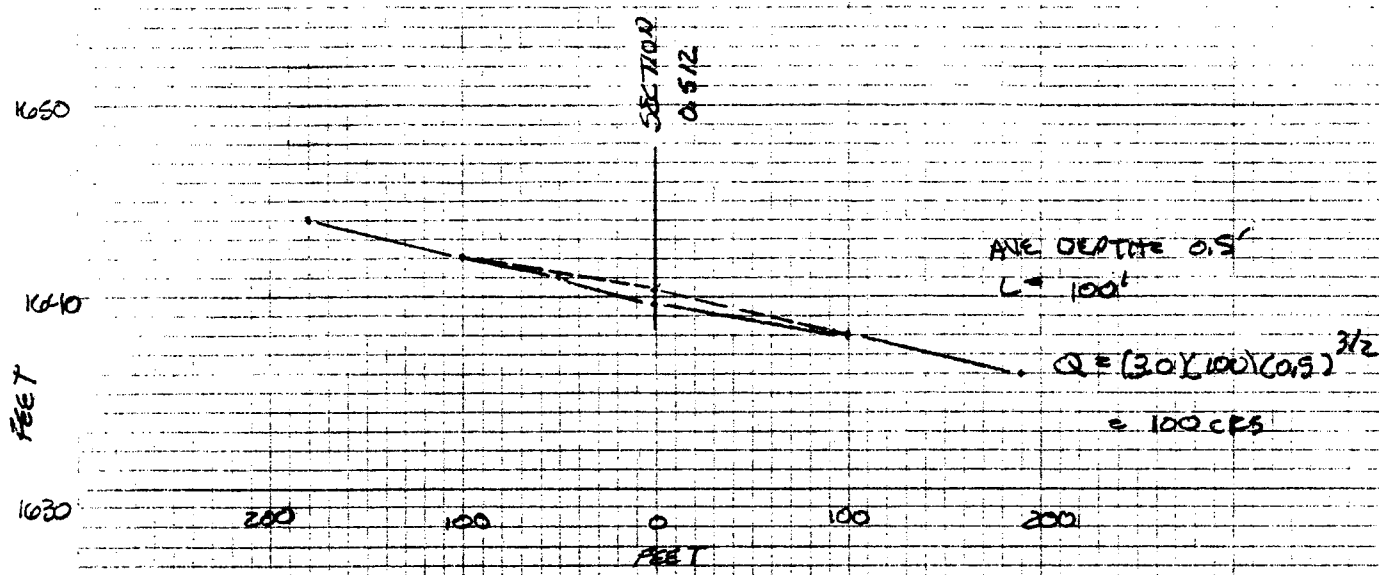
SPECIAL PROBLEM No 2A


1749.0
.8
.6
.4
.2
1748.0
.8
.6
.4
.2
1747.0
ELEV.
SMALL WASH A - SEE COMPUTER RUN SP2A(1).RAT
SECTION 2.105 *
WASH A - SEE COMPUTER RUN SP2A(2).RAT
SPECIAL PROBLEM NO 2A
* THE RATING CURVE FOR WASH A IS FOR A POINT APPROXIMATELY 50' DOWNSTREAM OF SECTION 2.105. ELEVATIONS ARE LINEARALLY INTERPOLATED BETWEEN SECTIONS 1.983 AND 2.105.
0
200
400
600
800
1000
1200
Q

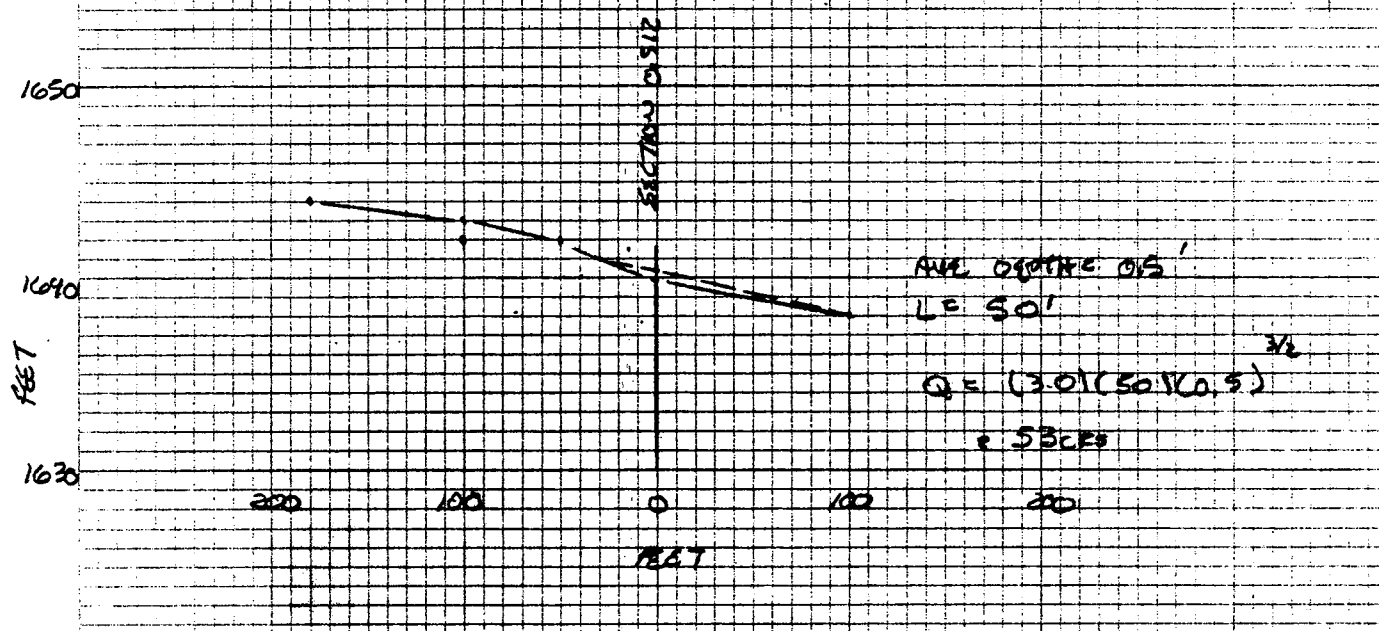
SPECIAL PROBLEM NO. 7A

SPECIAL PROBLEM NO. 1AS

LEFT OVERBANK OVERFLOW



RIGHT OVERBANK OVERFLOW

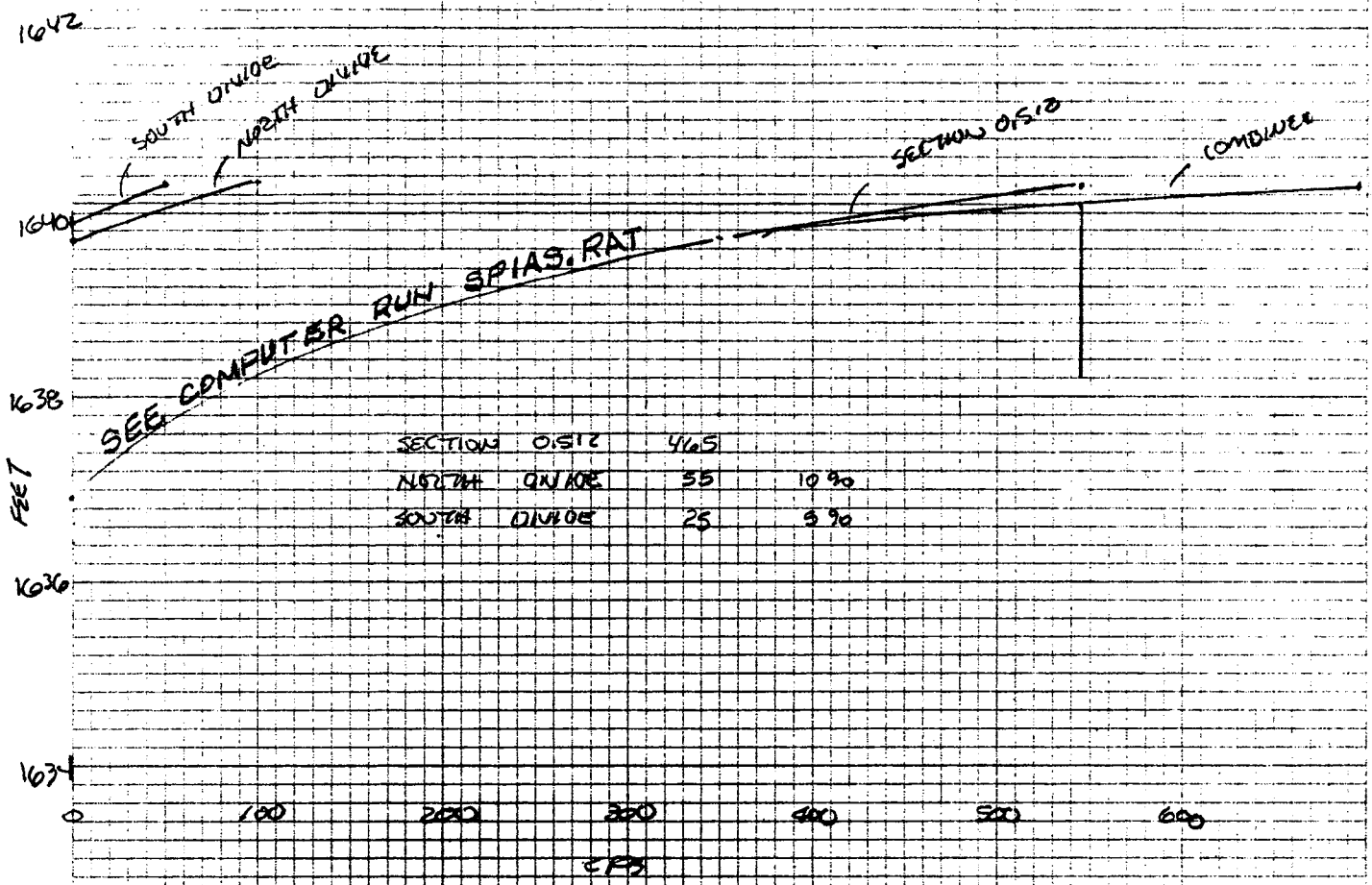


SPECIAL PROBLEM No. 1A5

RATING CURVE AT

SECTION 0.512

WASH A SOUTH



SECTION	0.512	4.65	
NORTH	DIVIDE	55	10 %
SOUTH	DIVIDE	25	5 %

SPECIAL PROBLEM

No. 1AS

SPECIAL PROBLEMS

KEY TO COMPUTER OUTPUT

Letter	Input File	Output File	Description	Special Problem
A	SP1A.RAT	SP1A.OH2	Wash A Breakout Flow Section 2.502	1A
B	SP2A(1).RAT	SP2A(1).OH2	Wash A Small Wash Split Flow near Section 2.105	2A
C	SP2A(2).RAT	SP2A(2).OH2	Wash A Rating Curve for Section 2.105	2A
D	SP1AS.RAT	SP1AS.OH2	Wash A South Breakout Flow, Section 0.512	1AS

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    19AUG94    TIME   10:39:19 *
 *****************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*        (916) 756-1104             *
*************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X         X     X            X     X
X     X  X         X                        X
XXXXXXX  XXXX      X          XXXXX    XXXXX
X     X  X         X                  X
X     X  X         X     X            X
X     X  XXXXXXX    XXXXX             XXXXXXX
```

1
19AUG94 10:39:19 PAGE 1

THIS RUN EXECUTED 19AUG94 10:39:19

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************
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T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
T2      RIO VERDY NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3      WASH A                  L. CULLER - (602)244-8100
T4      JOB 15183   PR15183\ETC\WASHA\SP1A.RAT     RUN 1
T5      RATING CURVE FOR BREAKOUT FLOW AT SECTION 2.502
T6      SPECIAL PROBLEM NO. 1A
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2			-1				1774	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							15

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

	38	42	1	43	26	51	4	8	53	54
	13	15	40							
QT	5	600	700	900	1200	1310				
NC				.1	.3					
NH	5	.08	9989.4	.035	10056.7	.07	10116.9	.04	10139.3	.07
NH	10250.									
X1	2.297	25	9989.4	10056.7	625	575	612			
GR	1774.7	9924.09	1774.7	9924.1	1774.0	9941.4	1773.2	9961.6	1773.7	9979.3
GR	1773.2	9983.0	1773.3	9989.4	1772.4	9994.2	1772.5	10000.0	1772.3	10010.2
GR	1772.8	10016.7	1772.8	10037.5	1773.5	10056.7	1774.2	10081.6	1773.8	10104.5
GR	1773.9	10116.9	1771.6	10121.2	1772.0	10130.7	1773.8	10139.3	1773.8	10150.4
GR	1773.7	10173.1	1773.7	10193.1	1774.0	10215.8	1773.9	10234.7	1774.5	10250.0
NH	5	.07	9990.9	.035	10017.4	.07	10061.0	.04	10077.4	.07
NH	10319.									
X1	2.403	39	9990.9	10017.4	530	550	560			
X3				9832.6						
GR	1788.4	9832.57	1788.4	9832.58	1788.4	9832.59	1788.4	9832.6	1788.0	9849.9
GR	1787.9	9872.8	1787.6	9883.9	1786.6	9886.4	1787.5	9891.2	1787.5	9909.2
GR	1786.5	9928.8	1786.1	9934.4	1787.0	9948.5	1787.4	9954.6	1788.0	9977.2
GR	1787.6	9990.9	1786.8	10000.0	1786.0	10005.1	1785.9	10010.1	1787.4	10017.4
GR	1787.8	10035.3	1787.5	10061.2	1786.3	10068.9	1787.7	10077.4	1787.8	10085.6
GR	1786.1	10094.3	1787.8	10103.2	1787.6	10122.6	1787.6	10147.5	1788.2	10173.9
GR	1788.6	10176.7	1787.5	10196.6	1788.5	10213.0	1789.3	10229.3	1789.2	10246.8
GR	1788.4	10265.6	1788.6	10285.7	1789.1	10304.6	1789.8	10319.0	0.0	0.0

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NC	.08	.06	.035	0.1	0.3					
X1	2.494	21	9976.7	10019.1	445	425	480			
X3				9902.7						
GR	1801.5	9902.67	1801.5	9902.68	1801.5	9902.69	1801.5	9902.7	1801.0	9921.9
GR	1799.7	9944.1	1800.4	9961.0	1799.5	9976.7	1798.6	9991.6	1798.6	10000.0
GR	1798.8	10008.1	1799.8	10019.1	1799.8	10036.1	1800.1	10048.0	1799.5	10062.1
GR	1799.0	10066.8	1797.5	10071.5	1799.0	10079.7	1799.6	10096.8	1800.0	10122.6
GR	1800.2	10130.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

1
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

```
 *PROF 1
0

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO 2.297

 3265 DIVIDED FLOW

 3720 CRITICAL DEPTH ASSUMED
      2.297      2.31   1773.91   1773.91   1774.00   1774.24       .33       .00       .00   1773.30
      600.0      24.8     376.3     198.9      20.4      75.4      48.5        .0        .0   1773.50
        .00      1.21      4.99      4.11      .080      .035      .042      .000   1771.60   9943.69
    .011884      625.      612.      575.         0         9         0       .00    240.30  10234.94


 FLOW DISTRIBUTION FOR SECNO=      2.30          CWSEL=   1773.91

 STA=    9944.    9983.    9989.   10057.   10121.   10131.   10139.   10235.
   PER Q=      3.0      1.1     62.7      3.9     22.2      5.8      1.2
    AREA=     16.2      4.2     75.4      9.0     20.0      8.7     10.7
     VEL=      1.1      1.5      5.0      2.6      6.7      4.0       .7
   DEPTH=       .4       .7      1.1       .1      2.1      1.0       .1

 1490 NH CARD USED
 *SECNO 2.403

 3265 DIVIDED FLOW

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=     9832.6   10319.0  TYPE=      1  TARGET=    -9832.600
      2.403      2.05   1787.95   1787.95       .00   1788.26       .31      7.71       .00   1787.60
      600.0     202.9     221.8     175.3      77.2      34.3      69.5       2.0       3.5   1787.40
        .04      2.63      6.47      2.52      .070      .035      .054      .000   1785.90   9860.94
    .016707      530.      560.      550.         4        12         0       .00    314.15  10204.01


 FLOW DISTRIBUTION FOR SECNO=      2.40          CWSEL=   1787.95

1
   19AUG94      10:39:19                                                                                PAGE    4

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 STA=    9861.    9891.    9929.    9934.    9949.    9991.   10017.   10061.   10069.   10077.   10094.   10103.   10163.
   PER Q=      3.0     10.4      5.9     11.3      3.1     37.0      4.2      6.6      6.2      4.2      4.0      3.3
    AREA=      9.0     26.8      9.3     19.8     12.4     34.3     14.1      8.1      8.1     10.4      8.9     16.4
     VEL=      2.0      2.3      3.8      3.4      1.5      6.5      1.8      4.9      4.6      2.4      2.7      1.2
   DEPTH=       .3       .7      1.7      1.4       .3      1.3       .3      1.1      1.0       .6      1.0       .3

 STA=   10163.   10204.
   PER Q=       .6
    AREA=      3.5
     VEL=      1.0
   DEPTH=       .1

 CCHV=     .100 CEHV=     .300
 *SECNO 2.494

 3265 DIVIDED FLOW

 3280 CROSS SECTION      2.49 EXTENDED       .03 FEET

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=     9902.7   10130.0  TYPE=      1  TARGET=    -9902.700
      2.494      2.73   1800.23   1800.23       .00   1800.67       .44      7.63       .04   1799.50
      600.0      11.5     348.1     240.5      10.4      53.9      74.8       3.7       6.0   1799.80
        .06      1.10      6.46      3.21      .080      .035      .060      .000   1797.50   9935.05
    .016844      445.      480.      425.        12        11         0       .00    187.88  10130.00


 FLOW DISTRIBUTION FOR SECNO=      2.49          CWSEL=   1800.23

 STA=    9935.    9977.   10019.   10062.   10072.   10080.   10097.   10123.   10130.
   PER Q=      1.9     58.0      4.8     10.0     13.6      8.1      3.4       .1
    AREA=     10.4     53.9     16.7     13.9     16.2     15.9     11.1      1.0
     VEL=      1.1      6.5      1.7      4.3      5.0      3.1      1.8       .8
   DEPTH=       .3      1.3       .4      1.5      2.0       .9       .4       .1

1
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 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
 T2      RIO VERDY NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
 T3      WASH A                    L. CULLER - (602)244-8100
 T4      JOB 15183   PR15183\ETC\WASHA\SP9WASHA.R   RUN  1
 T5      SPECIAL PROBLEM NO. 9

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 3                           -1                                    1774.
```

```
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2                  -1                                                                       15

1
   19AUG94      10:39:19                                                                                          PAGE    6

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *PROF 2
0

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO 2.297

 3265 DIVIDED FLOW

 3720 CRITICAL DEPTH ASSUMED
      2.297      2.34   1773.94   1773.94   1774.00   1774.35       .41       .00       .00   1773.30
      700.0      30.7     437.7     231.6      22.0      77.8      53.2        .0        .0   1773.50
        .00      1.39      5.62      4.35      .080      .035      .042      .000   1771.60   9942.79
    .014491      625.      612.      575.         0         4         0       .00    254.81  10235.85


 FLOW DISTRIBUTION FOR SECNO=      2.30          CWSEL=   1773.94

 STA=    9943.     9983.     9989.    10057.    10121.    10131.    10139.    10236.
   PER Q=      3.3       1.1      62.5       4.0      21.6       5.8       1.6
    AREA=     17.6       4.4      77.8      10.4      20.4       9.0      13.4
     VEL=      1.3       1.8       5.6       2.7       7.4       4.5        .8
   DEPTH=       .4        .7       1.2        .2       2.1       1.0        .1

 1490 NH CARD USED
 *SECNO 2.403

 3265 DIVIDED FLOW

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=     9832.6   10319.0  TYPE=      1  TARGET=    -9832.600
      2.403      2.15   1788.05   1788.05       .00   1788.35       .30      8.28       .01   1787.60
      700.0     236.2     242.9     220.9      91.2      36.9      86.2       2.3       3.7   1787.40
        .04      2.59      6.57      2.56      .070      .035      .055      .000   1785.90   9847.61
    .015590      530.      560.      550.        11        10         0       .00    338.90  10205.67


 FLOW DISTRIBUTION FOR SECNO=      2.40          CWSEL=   1788.05

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   19AUG94      10:39:19                                                                                          PAGE    7

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 STA=    9848.     9891.     9929.     9934.     9949.     9977.     9991.    10017.    10061.    10069.    10077.    10094.    10103.
   PER Q=      3.4      10.6       5.4      10.5       3.3        .5      34.7       5.6       6.4       6.1       4.3       3.9
    AREA=     13.0      30.6       9.8      21.2      13.2       3.5      36.9      18.5       8.9       9.0      12.1       9.8
     VEL=      1.8       2.4       3.8       3.5       1.7       1.1       6.6       2.1       5.1       4.8       2.5       2.8
   DEPTH=       .3        .8       1.8       1.5        .5        .3       1.4        .4       1.2       1.1        .7       1.1

 STA=   10103.    10148.    10206.
   PER Q=      3.8       1.5
    AREA=     18.1       9.8
     VEL=      1.5       1.1
   DEPTH=       .4        .2

 CCHV=     .100 CEHV=     .300
 *SECNO 2.494

 3265 DIVIDED FLOW

 3280 CROSS SECTION      2.49 EXTENDED       .14 FEET

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=     9902.7   10130.0  TYPE=      1  TARGET=    -9902.700
      2.494      2.84   1800.34   1800.34       .00   1800.81       .47      7.31       .05   1799.50
      700.0      17.5     395.5     287.1      14.4      58.4      86.5       4.2       6.4   1799.80
        .06      1.21      6.77      3.32      .080      .035      .060      .000   1797.50   9933.24
    .016656      445.      480.      425.        13        11         0       .00    194.09  10130.00


 FLOW DISTRIBUTION FOR SECNO=      2.49          CWSEL=   1800.34

 STA=    9933.     9977.    10019.    10048.    10067.    10072.    10080.    10097.    10123.    10130.
   PER Q=      2.5      56.5       3.9       4.7       7.1      12.6       8.3       4.2        .3
    AREA=     14.4      58.4      13.7      12.7       9.8      17.1      17.7      13.8       1.7
     VEL=      1.2       6.8       2.0       2.6       5.1       5.2       3.3       2.1       1.2
   DEPTH=       .3       1.4        .5        .7       2.1       2.1       1.0        .5        .2
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1
   19AUG94      10:39:19                                                                                                PAGE    8

 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
 T2      RIO VERDY NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
 T3      WASH A                    L. CULLER - (602)244-8100
 T4      JOB 15183   PR15183\ETC\WASHA\SP9WASHA.R   RUN  1
 T5      SPECIAL PROBLEM NO. 9

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 4                           -1                                    1774.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       3                 -1                                                                      15

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   19AUG94      10:39:19                                                                                                PAGE    9

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 3
0
 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO 2.297

 3265 DIVIDED FLOW

 3720 CRITICAL DEPTH ASSUMED
      2.297      2.50   1774.10   1774.10   1774.00   1774.55       .45       .00       .00   1773.30
      900.0      49.1     549.9     301.1      29.3      87.9      77.5        .0        .0   1773.50
        .00      1.67      6.25      3.88      .080      .035      .045      .000   1771.60   9939.05
    .015217      625.      612.      575.         0         7         0       .00    290.91  10239.68

 FLOW DISTRIBUTION FOR SECNO=      2.30          CWSEL=   1774.10

 STA=    9939.    9979.    9989.   10057.   10121.   10131.   10139.   10216.   10240.
   PER Q=     3.8      1.7     61.1      4.7     19.3      5.8      3.4       .3
    AREA=    21.5      7.8     87.9     17.6     21.8     10.3     24.6      3.2
     VEL=     1.6      1.9      6.3      2.4      8.0      5.1      1.3       .7
   DEPTH=      .5       .8      1.3       .3      2.3      1.2       .3       .1

 1490 NH CARD USED
 *SECNO 2.403

 3265 DIVIDED FLOW

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=     9832.6   10319.0  TYPE=      1  TARGET=    -9832.600
      2.403      2.29   1788.19   1788.19       .00   1788.52       .33      8.64       .01   1787.60
      900.0     305.0     288.3     306.7     110.7      40.5     109.4       2.9       4.0   1787.40
        .04      2.76      7.12      2.80      .070      .035      .055      .000   1785.90   9841.84
    .016196      530.      560.      550.         9        10         0       .00    355.13  10207.85

 FLOW DISTRIBUTION FOR SECNO=      2.40          CWSEL=   1788.19

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   19AUG94      10:39:19                                                                                                PAGE   10

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 STA=    9842.    9891.    9929.    9934.    9949.    9977.    9991.   10017.   10061.   10069.   10077.   10094.   10103.
   PER Q=     4.1     10.7      4.8      9.6      3.8       .8     32.0      7.0      6.1      5.9      4.3      3.8
    AREA=    19.2     35.6     10.6     23.1     17.0      5.3     40.5     24.4      9.9     10.1     14.3     11.0
     VEL=     1.9      2.7      4.1      3.7      2.0      1.4      7.1      2.6      5.5      5.3      2.7      3.1
   DEPTH=      .4       .9      1.9      1.6       .6       .4      1.5       .6      1.3      1.2       .8      1.2

 STA=   10103.   10148.   10208.
   PER Q=     4.8      2.2
    AREA=    24.0     15.7
     VEL=     1.8      1.3
   DEPTH=      .5       .3

 CCHV=     .100 CEHV=     .300
 *SECNO 2.494
 3280 CROSS SECTION      2.49 EXTENDED       .33 FEET

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=     9902.7   10130.0  TYPE=      1  TARGET=    -9902.700
      2.494      3.03   1800.53   1800.53       .00   1801.05       .52      7.27       .06   1799.50
      900.0      34.5     483.9     381.6      23.2      66.7     108.4       5.2       6.8   1799.80
        .06      1.48      7.25      3.52      .080      .035      .060      .000   1797.50   9929.88
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   .015962      445.      480.      425.        14        11         0       .00    200.12  10130.00

FLOW DISTRIBUTION FOR SECNO=      2.49          CWSEL=   1800.53

STA=    9930.    9977.   10019.   10036.   10062.   10072.   10080.   10097.   10123.   10130.
  PER Q=      3.8     53.8      3.5      4.6      8.7     11.2      8.4      5.3       .6
   AREA=     23.2     66.7     12.5     17.3     16.8     18.7     21.1     18.9      3.2
    VEL=      1.5      7.3      2.5      2.4      4.7      5.4      3.6      2.5      1.7
  DEPTH=       .5      1.6       .7       .7      1.8      2.3      1.2       .7       .4

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T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
T2      RIO VERDY NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3      WASH A                    L. CULLER - (602)244-8100
T4      JOB 15183   PR15183\ETC\WASHA\SP9WASHA.R   RUN  1
T5      SPECIAL PROBLEM NO. 9

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                5                           -1                                    1774.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     4                   -1                                                                     15

1
   19AUG94      10:39:19                                                                          PAGE   12

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4
0

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 2.297
3720 CRITICAL DEPTH ASSUMED
     2.297      2.72   1774.32   1774.32   1774.00   1774.81       .49       .00       .00   1773.30
    1200.0      80.7     697.5     421.7      41.3     103.1     118.9        .0        .0   1773.50
       .00      1.95      6.76      3.55      .080      .035      .048      .000   1771.60   9933.47
   .014406      625.      612.      575.         0         7         0       .00    311.95  10245.43

FLOW DISTRIBUTION FOR SECNO=      2.30          CWSEL=   1774.32

STA=    9933.    9979.    9989.   10057.   10121.   10131.   10139.   10193.   10245.
  PER Q=      4.9      1.9     58.1      6.1     16.5      5.7      4.6      2.3
   AREA=     31.2     10.1    103.1     31.7     23.9     12.2     31.1     19.9
    VEL=      1.9      2.2      6.8      2.3      8.3      5.6      1.8      1.4
  DEPTH=       .7      1.0      1.5       .5      2.5      1.4       .6       .4

1490 NH CARD USED
*SECNO 2.403

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9832.6   10319.0  TYPE=      1  TARGET=    -9832.600
     2.403      2.46   1788.36   1788.36       .00   1788.73       .38      8.53       .01   1787.60
    1200.0     409.1     350.0     440.9     137.1      45.1     141.1       3.7       4.3   1787.40
       .03      2.99      7.77      3.12      .070      .035      .056      .000   1785.90   9834.38
   .016707      530.      560.      550.        10        10         0       .00    370.25  10210.68

FLOW DISTRIBUTION FOR SECNO=      2.40          CWSEL=   1788.36

1
   19AUG94      10:39:19                                                                          PAGE   13

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

STA=    9834.    9886.    9909.    9929.    9934.    9949.    9977.    9991.   10017.   10061.   10069.   10077.   10094.
  PER Q=      3.3      4.9      7.5      4.3      8.6      4.4      1.2     29.2      8.4      5.7      5.6      4.3
   AREA=     22.0     21.7     26.6     11.5     25.5     22.0      7.7     45.1     31.9     11.2     11.5     17.2
    VEL=      1.8      2.7      3.4      4.4      4.1      2.4      1.9      7.8      3.2      6.1      5.8      3.0
  DEPTH=       .4      1.0      1.4      2.1      1.8       .8       .6      1.7       .7      1.5      1.4      1.0

STA=   10094.   10103.   10148.   10211.
  PER Q=      3.6      5.8      3.3
   AREA=     12.5     31.7     24.9
    VEL=      3.4      2.2      1.6
  DEPTH=      1.4       .7       .4

CCHV=     .100 CEHV=     .300
*SECNO 2.494
3280 CROSS SECTION      2.49 EXTENDED       .57 FEET
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7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      9902.7   10130.0  TYPE=      1  TARGET=    -9902.700
     2.494      3.27   1800.77   1800.77       .00   1801.38       .61      7.38       .07   1799.50
    1200.0      64.4     612.0     523.6      34.8      76.7     134.6       6.6       7.2   1799.80
       .06      1.85      7.97      3.89      .080      .035      .060      .000   1797.50   9925.85
   .016031      445.      480.      425.        15        11         0       .00    204.15  10130.00

FLOW DISTRIBUTION FOR SECNO=      2.49          CWSEL=   1800.77

STA=    9926.    9961.    9977.   10019.   10036.   10062.   10072.   10080.   10097.   10123.   10130.
  PER Q=      3.2      2.2     51.0      4.2      5.7      8.0      9.9      8.5      6.4       .9
   AREA=     21.9     12.9     76.7     16.5     23.4     19.0     20.7     25.1     25.0      4.9
    VEL=      1.7      2.1      8.0      3.1      2.9      5.1      5.7      4.1      3.1      2.3
  DEPTH=       .6       .8      1.8      1.0       .9      2.0      2.5      1.5      1.0       .7

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T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
T2      RIO VERDY NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3      WASH A                    L. CULLER - (602)244-8100
T4      JOB 15183   PR15183\ETC\WASHA\SP9WASHA.R   RUN  1
T5      SPECIAL PROBLEM NO. 9

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                6                           -1                                    1774.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15                  -1                                                                     15


1
   19AUG94      10:39:19                                                                          PAGE   15

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 5
0
 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO 2.297
 3720 CRITICAL DEPTH ASSUMED
     2.297      2.76   1774.36   1774.36   1774.00   1774.89       .54       .00       .00   1773.30
    1310.0      90.5     754.7     464.8      43.5     105.7     126.2        .0        .0   1773.50
       .00      2.08      7.14      3.68      .080      .035      .049      .000   1771.60   9932.52
   .015525      625.      612.      575.         0        10         0       .00    313.88  10246.41

 FLOW DISTRIBUTION FOR SECNO=      2.30          CWSEL=   1774.36

 STA=    9933.    9979.    9989.   10057.   10117.   10121.   10131.   10139.   10193.   10246.
   PER Q=      5.0      1.9     57.6      3.3      3.1     16.1      5.6      4.9      2.6
    AREA=     33.0     10.5    105.7     27.2      6.9     24.3     12.5     33.2     22.0
     VEL=      2.0      2.4      7.1      1.6      5.8      8.7      5.9      1.9      1.5
   DEPTH=       .7      1.0      1.6       .5      1.6      2.6      1.5       .6       .4

 1490 NH CARD USED
 *SECNO 2.403

 3265 DIVIDED FLOW

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      9832.6   10319.0  TYPE=      1  TARGET=    -9832.600
     2.403      2.52   1788.42   1788.42       .00   1788.81       .39      8.88       .01   1787.60
    1310.0     447.7     371.2     491.1     146.3      46.6     152.1       3.9       4.3   1787.40
       .03      3.06      7.97      3.23      .070      .035      .056      .000   1785.90   9832.60
   .016793      530.      560.      550.        11        10         0       .00    376.57  10267.32

 FLOW DISTRIBUTION FOR SECNO=      2.40          CWSEL=   1788.42

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   19AUG94      10:39:19                                                                          PAGE   16

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 STA=    9833.    9886.    9909.    9929.    9934.    9949.    9977.    9991.   10017.   10061.   10069.   10077.   10094.
   PER Q=      3.6      5.0      7.4      4.1      8.4      4.5      1.3     28.3      8.8      5.6      5.5      4.3
    AREA=     25.2     23.1     27.8     11.9     26.3     23.6      8.5     46.6     34.5     11.7     12.0     18.2
     VEL=      1.9      2.8      3.5      4.5      4.2      2.5      2.0      8.0      3.3      6.3      6.0      3.1
   DEPTH=       .5      1.0      1.4      2.1      1.9       .8       .6      1.8       .8      1.5      1.4      1.1
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STA=   10094.   10103.   10148.   10212.
  PER Q=      3.5      6.1      3.7
   AREA=     13.1     34.3     28.3
    VEL=      3.5      2.3      1.7
  DEPTH=      1.5       .8       .4

CCHV=     .100 CEHV=     .300
*SECNO 2.494
3280 CROSS SECTION      2.49 EXTENDED       .65 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9902.7   10130.0  TYPE=      1  TARGET=    -9902.700
     2.494      3.35   1800.85   1800.85       .00   1801.49       .64      7.39       .07   1799.50
    1310.0      76.5     657.5     576.0      38.9      80.2     143.5       7.0       7.3   1799.80
       .05      1.97      8.20      4.01      .080      .035      .060      .000   1797.50   9924.47
   .016002      445.      480.      425.        15        11         0       .00    205.53  10130.00


FLOW DISTRIBUTION FOR SECNO=      2.49          CWSEL=   1800.85

STA=    9924.    9961.    9977.   10019.   10036.   10062.   10072.   10080.   10097.   10123.   10130.
  PER Q=      3.5      2.4     50.2      4.4      6.0      7.8      9.5      8.5      6.7      1.0
   AREA=     24.8     14.1     80.2     17.8     25.5     19.7     21.3     26.5     27.1      5.5
    VEL=      1.8      2.2      8.2      3.2      3.1      5.2      5.9      4.2      3.2      2.4
  DEPTH=       .7       .9      1.9      1.0      1.0      2.1      2.6      1.5      1.0       .7
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THIS RUN EXECUTED 19AUG94 10:39:22

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

WASH A

SUMMARY PRINTOUT

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	SSTA	ENDST	QLOB	QROB	ELTRD
*	2.297	1771.60	1773.91	600.00	4.99	.00	240.30	2.31	9943.69	10234.94	24.76	198.92	.00
*	2.297	1771.60	1773.94	700.00	5.62	.00	254.81	2.34	9942.79	10235.85	30.71	231.57	.00
*	2.297	1771.60	1774.10	900.00	6.25	.00	290.91	2.50	9939.05	10239.68	49.05	301.09	.00
*	2.297	1771.60	1774.32	1200.00	6.76	.00	311.95	2.72	9933.47	10245.43	80.73	421.73	.00
*	2.297	1771.60	1774.36	1310.00	7.14	.00	313.88	2.76	9932.52	10246.41	90.51	464.81	.00
*	2.403	1785.90	1787.95	600.00	6.47	14.04	314.15	2.05	9860.94	10204.01	202.89	175.30	.00
*	2.403	1785.90	1788.05	700.00	6.57	14.11	338.90	2.15	9847.61	10205.67	236.18	220.89	.00
*	2.403	1785.90	1788.19	900.00	7.12	14.09	355.13	2.29	9841.84	10207.85	305.01	306.68	.00
*	2.403	1785.90	1788.36	1200.00	7.77	14.04	370.25	2.46	9834.38	10210.68	409.14	440.89	.00
*	2.403	1785.90	1788.42	1310.00	7.97	14.06	376.57	2.52	9832.60	10267.32	447.68	491.15	.00
*	2.494	1797.50	1800.23	600.00	6.46	12.28	187.88	2.73	9935.05	10130.00	11.47	240.46	.00
*	2.494	1797.50	1800.34	700.00	6.77	12.28	194.09	2.84	9933.24	10130.00	17.45	287.06	.00
*	2.494	1797.50	1800.53	900.00	7.25	12.35	200.12	3.03	9929.88	10130.00	34.50	381.61	.00
*	2.494	1797.50	1800.77	1200.00	7.97	12.41	204.15	3.27	9925.85	10130.00	64.43	523.58	.00
*	2.494	1797.50	1800.85	1310.00	8.20	12.43	205.53	3.35	9924.47	10130.00	76.51	576.04	.00

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      2.297  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.297  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.297  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.297  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.297  PROFILE=  5  CRITICAL DEPTH ASSUMED

CAUTION SECNO=      2.403  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.403  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.403  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.403  PROFILE=  2  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.403  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.403  PROFILE=  3  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.403  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.403  PROFILE=  4  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.403  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.403  PROFILE=  5  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      2.494  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.494  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.494  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.494  PROFILE=  2  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.494  PROFILE=  3  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=      2.494  PROFILE=  3  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.494  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.494  PROFILE=  4  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.494  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.494  PROFILE=  5  MINIMUM SPECIFIC ENERGY
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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    19AUG94    TIME   10:39:40 *
 *****************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*        (916) 756-1104             *
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X           XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
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1
   19AUG94      10:39:40                                                                                    PAGE    1


                                                                                THIS RUN EXECUTED 19AUG94    10:39:40
 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************


 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
 T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
 T3      WASH A                    L. CULLER - (602)244-8100
 T4      JOB 15183   PR15183\ETC\WASHA\SP2A(1).RAT   RUN  1
 T5      RATING CURVE FOR SPLIT FLOW AT SMALL WASH NEAR SECTION 2.105
 T6      SPECIAL PROBLEM NO. 2A

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                           .0311                                   1750

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1                  -1                                                                     15

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        42         1        43        26        51         4         8        53        54
      13        15        40

 QT        5        50       100       200       300       400
 NC      .07       .07       .04       .1        0.3
 X1    0.000         5    9995.0   10009.0
 GR   1748.5    9965.0    1748.0    9995.0    1747.8   10000.0    1748.0   10009.0    1748.6   10020.0
1
   19AUG94      10:39:40                                                                                    PAGE    2

      SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
      Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
      TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
      SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1

 CCHV=     .100 CEHV=     .300
 *SECNO  .000
 3280 CROSS SECTION       .00 EXTENDED       .04 FEET

 3720 CRITICAL DEPTH ASSUMED
       .000       .74   1748.54   1748.54   1750.00   1748.72       .17       .00       .00   1748.00
      50.0      11.5      35.1       3.4       8.7       9.0       2.7        .0        .0   1748.00
       .00      1.32      3.91      1.26      .070      .040      .070      .000   1747.80   9965.00
   .020111        0.        0.        0.         0        18         0       .00     53.91  10018.91


 FLOW DISTRIBUTION FOR SECNO=       .00          CWSEL=   1748.54

 STA=    9965.    9995.   10009.   10019.
   PER Q=     23.0     70.2      6.7
    AREA=      8.7      9.0      2.7
     VEL=      1.3      3.9      1.3
   DEPTH=       .3       .6       .3

1
   19AUG94      10:39:40                                                                                    PAGE    3


 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
 T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
 T3      WASH A                    L. CULLER - (602)244-8100
 T4      JOB 15183   PR15183\ETC\WASHA\SP14A.RAT    RUN   I
 T5      RATING CURVE FOR SPLIT FLOW AT SMALL WASH NEAR SECTION 2.105
 T6      SPECIAL PROBLEM 14
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J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                3                           .0311                                   1750

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     2                  -1                                                                      15

1
  19AUG94      10:39:40                                                                                    PAGE    4

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CCHV=     .100 CEHV=     .300
*SECNO  .000
3280 CROSS SECTION       .00 EXTENDED       .25 FEET

3720 CRITICAL DEPTH ASSUMED
     .000       .95   1748.75   1748.75   1750.00   1749.02       .27       .00       .00   1748.00
   100.0      30.3      60.5       9.3      14.9      11.9       4.9        .0        .0   1748.00
     .00      2.03      5.10      1.89      .070      .040      .070      .000   1747.80   9965.00
 .023548        0.        0.        0.         0        18         0       .00     55.00  10020.00

FLOW DISTRIBUTION FOR SECNO=       .00          CWSEL=   1748.75

STA=    9965.    9995.   10009.   10020.
  PER Q=     30.3     60.5      9.3
   AREA=     14.9     11.9      4.9
    VEL=      2.0      5.1      1.9
  DEPTH=       .5       .8       .4

1
  19AUG94      10:39:40                                                                                    PAGE    5

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3      WASH A                    L. CULLER - (602)244-8100
T4      JOB 15183   PR15183\ETC\WASHA\SP14A.RAT    RUN   I
T5      RATING CURVE FOR SPLIT FLOW AT SMALL WASH NEAR SECTION 2.105
T6      SPECIAL PROBLEM 14

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                4                           .0311                                   1750

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     3                  -1                                                                      15

1
  19AUG94      10:39:40                                                                                    PAGE    6

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3

CCHV=     .100 CEHV=     .300
*SECNO  .000
3280 CROSS SECTION       .00 EXTENDED       .56 FEET

3720 CRITICAL DEPTH ASSUMED
     .000      1.26   1749.06   1749.06   1750.00   1749.47       .41       .00       .00   1748.00
   200.0      70.8     106.3      23.0      24.4      16.3       8.4        .0        .0   1748.00
     .00      2.90      6.53      2.74      .070      .040      .070      .000   1747.80   9965.00
 .025289        0.        0.        0.         0        11         0       .00     55.00  10020.00

FLOW DISTRIBUTION FOR SECNO=       .00          CWSEL=   1749.06

STA=    9965.    9995.   10009.   10020.
  PER Q=     35.4     53.1     11.5
   AREA=     24.4     16.3      8.4
    VEL=      2.9      6.5      2.7
  DEPTH=       .8      1.2       .8

1
  19AUG94      10:39:40                                                                                    PAGE    7

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3      WASH A                    L. CULLER - (602)244-8100
T4      JOB 15183   PR15183\ETC\WASHA\SP14A.RAT    RUN   I
T5      RATING CURVE FOR SPLIT FLOW AT SMALL WASH NEAR SECTION 2.105
T6      SPECIAL PROBLEM 14

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
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                5                          .0311                                    1750

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     4                  -1                                                                       15

1
   19AUG94      10:39:40                                                                                                    PAGE    8

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CCHV=     .100 CEHV=     .300
*SECNO  .000
3280 CROSS SECTION       .00 EXTENDED       .81 FEET

3720 CRITICAL DEPTH ASSUMED
     .000      1.51   1749.31   1749.31   1750.00   1749.86       .55       .00       .00   1748.00
   300.0     112.5     150.4      37.1      31.8      19.7      11.1        .0        .0   1748.00
     .00      3.54      7.62      3.34      .070      .040      .070      .000   1747.80   9965.00
 .026580        0.        0.        0.         0        19         0       .00     55.00  10020.00

FLOW DISTRIBUTION FOR SECNO=       .00          CWSEL=   1749.31

STA=    9965.    9995.   10009.   10020.
  PER Q=     37.5     50.1     12.4
   AREA=     31.8     19.7     11.1
    VEL=      3.5      7.6      3.3
  DEPTH=      1.1      1.4      1.0

1
   19AUG94      10:39:40                                                                                                    PAGE    9

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3      WASH A                    L. CULLER - (602)244-8100
T4      JOB 15183   PR15183\ETC\WASHA\SP14A.RAT    RUN   I
T5      RATING CURVE FOR SPLIT FLOW AT SMALL WASH NEAR SECTION 2.105
T6      SPECIAL PROBLEM 14

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                6                          .0311                                    1750

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15                 -1                                                                       15


1
   19AUG94      10:39:40                                                                                                    PAGE   10

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 5

CCHV=     .100 CEHV=     .300
*SECNO  .000
3280 CROSS SECTION       .00 EXTENDED      1.04 FEET

3720 CRITICAL DEPTH ASSUMED
     .000      1.74   1749.54   1749.54   1750.00   1750.20       .66       .00       .00   1748.00
   400.0     155.1     193.4      51.5      38.6      22.9      13.6        .0        .0   1748.00
     .00      4.02      8.45      3.79      .070      .040      .070      .000   1747.80   9965.00
 .026845        0.        0.        0.         0        15         0       .00     55.00  10020.00

FLOW DISTRIBUTION FOR SECNO=       .00          CWSEL=   1749.54

STA=    9965.    9995.   10009.   10020.
  PER Q=     38.8     48.4     12.9
   AREA=     38.6     22.9     13.6
    VEL=      4.0      8.4      3.8
  DEPTH=      1.3      1.6      1.2

1
   19AUG94      10:39:40                                                                                                    PAGE   11


                                                                                THIS RUN EXECUTED 19AUG94    10:39:41

 ************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
 ************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

WASH A

SUMMARY PRINTOUT

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	SSTA	ENDST	QLOB	QROB	ELTRD
*	.000	1747.80	1748.54	50.00	3.91	.00	53.91	.74	9965.00	10018.91	11.51	3.37	.00
*	.000	1747.80	1748.75	100.00	5.10	.00	55.00	.95	9965.00	10020.00	30.28	9.26	.00
*	.000	1747.80	1749.06	200.00	6.53	.00	55.00	1.26	9965.00	10020.00	70.76	22.97	.00
*	.000	1747.80	1749.31	300.00	7.62	.00	55.00	1.51	9965.00	10020.00	112.49	37.12	.00
*	.000	1747.80	1749.54	400.00	8.45	.00	55.00	1.74	9965.00	10020.00	155.05	51.51	.00

1
19AUG94 10:39:40 PAGE 12

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      .000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .000  PROFILE=  5  CRITICAL DEPTH ASSUMED
```

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    19AUG94    TIME   10:39:56 *
 *****************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X         X     X            X     X
X     X  X         X                        X
XXXXXXX  XXXX      X           XXXXX    XXXXX
X     X  X         X                  X
X     X  X         X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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1
   19AUG94      10:39:56                                                                                    PAGE    1
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                                                                                THIS RUN EXECUTED 19AUG94    10:39:56
 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************


 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
 T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
 T3      WASH A                    L. CULLER - (602)244-8100
 T4      JOB 15183   PR15183\ETC\WASHA\SP2A(2).RAT   RUN  1
 T5      RATING CURVE FOR SECTION 2.105
 T6      SPECIAL PROBLEM NO. 2A

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                            -1                                     1712

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1                 -1                                                                      15


 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        42         1        43        26        51         4         8        53        54
      13        15        40

 QT        5       600       650       900      1200      1310
 NC                                    0.1       0.3
 NH        7       .07    9644.0       .04    9675.2       .07    9860.0       .04    9886.7       .07
 NH   9958.2      .035   10070.3       .07   10140.5
 X1    1.887        39    9958.2   10070.3       415       400       428
 GR   1723.7    9561.7    1723.5    9588.3    1723.2    9613.8    1722.6    9644.0    1719.8    9651.4
 GR   1720.1    9657.0    1721.2    9661.7    1720.1    9668.3    1721.4    9675.2    1721.5    9689.8
 GR   1721.4    9692.3    1721.4    9709.0    1722.1    9729.6    1722.3    9755.5    1722.4    9785.4
 GR   1722.3    9810.3    1721.9    9832.1    1721.9    9846.2    1722.0    9860.0    1721.8    9872.4
 GR   1721.0    9876.3    1721.2    9882.6    1722.2    9886.7    1722.2    9905.6    1722.1    9936.4
 GR   1722.6    9958.2    1721.7    9974.6    1721.1    9988.8    1721.2   10000.0    1721.5   10017.5
 GR   1721.7   10039.0    1721.7   10060.4    1722.0   10070.3    1721.5   10082.8    1722.4   10091.5
 GR   1721.8   10103.3    1721.7   10116.2    1722.6   10127.2    1722.9   10140.5

 NH        6       .07    9874.2       .04    9923.5       .07    9988.0      .035   10018.5       .07
 NH   10249.       .04   10348.6
 X1    1.983        42    9988.0   10018.5       525       505       507
 GR   1737.3    9676.1    1738.1    9695.6    1737.1    9713.9    1737.9    9725.1    1738.0    9741.3
 GR   1736.5    9761.2    1735.9    9786.6    1734.9    9807.5    1734.0    9818.6    1733.3    9828.2
 GR   1734.7    9837.9    1733.9    9850.9    1733.8    9862.6    1734.1    9874.2    1733.9    9883.6
 GR   1731.8    9889.8    1733.5    9895.3    1734.5    9910.0    1735.2    9923.5    1735.0    9944.4
 GR   1734.7    9946.0    1734.4    9963.1    1733.5    9974.9    1734.2    9988.0    1732.7    9996.9
 GR   1732.7   10000.0    1733.1   10013.4    1734.1   10018.5    1734.7   10031.5    1733.5   10041.3
 GR   1734.2   10045.0    1734.7   10074.2    1735.6   10112.9    1735.5   10154.9    1735.9   10184.5
1
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 GR   1736.1   10217.0    1735.5   10227.4    1736.7   10249.0    1736.2   10280.8    1736.5   10306.2
 GR   1736.3   10327.7    1736.6   10348.6

 NC      .08       .07      .035       0.1       0.3
 X1    2.105        25    9989.7   10060.7       675       655       644
 GR   1751.0    9826.6    1750.9    9849.4    1749.6    9894.0    1748.9    9914.6    1749.0    9944.2
 GR   1749.2    9971.3    1748.9    9989.7    1747.0   10000.0    1748.9   10010.4    1749.2   10024.4
 GR   1748.9   10030.7    1747.7   10034.1    1748.3   10041.7    1749.1   10060.7    1748.5   10078.6
 GR   1748.2   10090.7    1748.8   10097.9    1749.3   10106.8    1748.7   10135.7    1749.2   10159.0
 GR   1749.0   10175.1    1749.2   10190.0    1748.4   10195.3    1749.5   10209.2    1750.2   10224.0
1
   19AUG94      10:39:56                                                                                    PAGE    3


      SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
      Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
      TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
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    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1
0

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO 1.887

 3265 DIVIDED FLOW

 3720 CRITICAL DEPTH ASSUMED
      1.887      2.23   1722.03   1722.03   1712.00   1722.33       .30       .00       .00   1722.60
      600.0     396.7     191.0      12.3      84.3      50.3       9.8        .0        .0   1722.00
        .00      4.70      3.80      1.25      .044      .035      .070      .000   1719.80   9645.49
    .020522      415.      428.      400.         0        31         0       .00    284.54  10120.29

 FLOW DISTRIBUTION FOR SECNO=      1.89          CWSEL=   1722.03

 STA=    9645.    9651.    9657.    9662.    9668.    9675.    9690.    9709.    9876.    9883.    9886.   10070.   10120.
   PER Q=      6.0     16.9      7.0     10.0      9.2      3.0      4.5      3.8      5.0       .7     31.8      2.0
    AREA=      6.6     11.7      6.5      9.1      8.9      8.5     12.1     13.6      5.9      1.4     50.3      9.8
     VEL=      5.5      8.7      6.5      6.6      6.2      2.1      2.2      1.7      5.1      2.9      3.8      1.2
   DEPTH=      1.1      2.1      1.4      1.4      1.3       .6       .6       .1       .9       .4       .5       .2

 1490 NH CARD USED
 *SECNO 1.983

 3265 DIVIDED FLOW

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      1.983      2.76   1734.56   1734.56       .00   1734.99       .42      9.37       .04   1734.20
      600.0     292.5     288.2      19.3      87.2      42.8      13.4       1.7       2.9   1734.10
        .03      3.35      6.73      1.45      .051      .035      .070      .000   1731.80   9811.67
    .016112      525.      507.      505.        15        11         0       .00    204.47  10066.14

 FLOW DISTRIBUTION FOR SECNO=      1.98          CWSEL=   1734.56

 STA=    9812.    9828.    9863.    9884.    9890.    9895.    9910.    9988.   10019.   10066.
   PER Q=      4.1      5.6      5.1     11.5     12.3      4.4      5.7     48.0      3.2
    AREA=     10.7     17.4     12.4     10.6     10.5      8.3     17.3     42.8     13.4
     VEL=      2.3      1.9      2.5      6.5      7.0      3.2      2.0      6.7      1.4
   DEPTH=       .6       .5       .6      1.7      1.9       .6       .2      1.4       .3

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   19AUG94      10:39:56                                                                                    PAGE    4

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 CCHV=     .100 CEHV=     .300
 *SECNO 2.105
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      2.105      2.47   1749.47   1749.47       .00   1749.78       .31     10.88       .01   1748.90
      600.0      51.4     378.1     170.5      37.5      69.4      83.5       4.2       6.8   1749.10
        .07      1.37      5.45      2.04      .080      .035      .070      .000   1747.00   9897.97
    .017142      675.      644.      655.        11         9         0       .00    310.79  10208.76

 FLOW DISTRIBUTION FOR SECNO=      2.11          CWSEL=   1749.47

 STA=    9898.    9944.    9990.   10061.   10079.   10091.   10098.   10136.   10159.   10195.   10209.
   PER Q=      4.8      3.8     63.0      4.2      6.7      3.1      4.7      3.6      3.9      2.2
    AREA=     20.0     17.5     69.4     11.9     13.5      6.9     17.1     12.0     14.8      7.2
     VEL=      1.4      1.3      5.4      2.1      3.0      2.7      1.6      1.8      1.6      1.8
   DEPTH=       .4       .4      1.0       .7      1.1      1.0       .5       .5       .4       .5

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   19AUG94      10:39:56                                                                                    PAGE    5

 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
 T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
 T3      WASH A                    L. CULLER - (602)244-8100
 T4      JOB 15183   PR15183\ETC\WASHA\SP3A(2).RAT   RUN  1
 T5      SPECIAL PROBLEM NO. 3A

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 3                           -1                                    1712

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      2                    -1                                                                     15

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
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```
 *PROF 2
0

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO 1.887

 3265 DIVIDED FLOW

 3720 CRITICAL DEPTH ASSUMED
      1.887      2.29   1722.09   1722.09   1712.00   1722.37       .29       .00       .00   1722.60
      650.0     417.2     217.0      15.8      91.7      55.5      11.9        .0        .0   1722.00
        .00      4.55      3.91      1.33      .045      .035      .070      .000   1719.80   9645.36
    .019313      415.      428.      400.         0        31         0       .00    292.17  10120.91


 FLOW DISTRIBUTION FOR SECNO=      1.89          CWSEL=   1722.09

 STA=    9645.    9651.    9657.    9662.    9668.    9675.    9690.    9709.    9876.    9883.    9886.   10070.   10121.
   PER Q=      5.7     15.7      6.7      9.5      8.8      3.1      4.6      4.5      4.9       .7     33.4      2.4
    AREA=      6.9     12.0      6.7      9.5      9.2      9.3     13.0     17.3      6.2      1.6     55.5     11.9
     VEL=      5.4      8.6      6.5      6.5      6.2      2.2      2.3      1.7      5.1      2.9      3.9      1.3
   DEPTH=      1.1      2.1      1.4      1.4      1.3       .6       .7       .1      1.0       .4       .5       .2

 1490 NH CARD USED
 *SECNO 1.983

 3265 DIVIDED FLOW

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      1.983      2.83   1734.63   1734.63       .00   1735.05       .42      8.87       .04   1734.20
      650.0     321.7     304.3      24.1      96.4      44.9      16.6       1.9       3.0   1734.10
        .03      3.34      6.77      1.45      .051      .035      .070      .000   1731.80   9810.83
    .015335      525.      507.      505.        20        11         0       .00    218.12  10070.12


 FLOW DISTRIBUTION FOR SECNO=      1.98          CWSEL=   1734.63

 STA=    9811.    9828.    9863.    9884.    9890.    9895.    9910.    9988.   10019.   10070.
   PER Q=      4.2      5.9      5.5     11.1     11.8      4.8      6.2     46.8      3.7
    AREA=     11.9     19.6     13.8     11.0     10.9      9.3     19.9     44.9     16.6
     VEL=      2.3      2.0      2.6      6.5      7.0      3.4      2.0      6.8      1.5
   DEPTH=       .7       .6       .7      1.8      2.0       .6       .3      1.5       .3

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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 CCHV=     .100 CEHV=     .300
 *SECNO 2.105
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      2.105      2.51   1749.51   1749.51       .00   1749.83       .32     10.48       .01   1748.90
      650.0      59.6     401.7     188.6      41.5      72.5      90.0       4.6       7.1   1749.10
        .07      1.44      5.54      2.10      .080      .035      .070      .000   1747.00   9896.68
    .016721      675.      644.      655.        11         9         0       .00    312.71  10209.39


 FLOW DISTRIBUTION FOR SECNO=      2.11          CWSEL=   1749.51

 STA=    9897.    9944.    9990.   10061.   10079.   10091.   10098.   10136.   10159.   10195.   10209.
   PER Q=      5.1      4.1     61.8      4.3      6.5      3.1      5.0      3.7      4.2      2.2
    AREA=     22.0     19.5     72.5     12.7     14.0      7.3     18.8     13.0     16.4      7.8
     VEL=      1.5      1.4      5.5      2.2      3.0      2.8      1.7      1.9      1.7      1.9
   DEPTH=       .5       .4      1.0       .7      1.2      1.0       .5       .6       .5       .6

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 T1       FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
 T2       RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
 T3       WASH A                    L. CULLER - (602)244-8100
 T4       JOB 15183   PR15183\ETC\WASHA\SP3A(2).RAT   RUN  1
 T5       SPECIAL PROBLEM NO. 3A

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 4                           -1                                      1712

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       3                  -1                                                                      15

1
    19AUG94      10:39:56                                                                                    PAGE    9

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
```

```
*PROF 3
0

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.887

3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED
     1.887      2.47   1722.27   1722.27   1712.00   1722.55       .28       .00       .00   1722.60
     900.0     534.5     332.7      32.8     126.7      74.3      20.0        .0        .0   1722.00
       .00      4.22      4.48      1.64      .046      .035      .070      .000   1719.80   9644.88
   .017876      415.      428.      400.         0        34         0       .00    392.59  10123.12


FLOW DISTRIBUTION FOR SECNO=      1.89          CWSEL=   1722.27

STA=    9645.    9651.    9657.    9662.    9668.    9675.    9690.    9709.    9846.    9876.    9883.    9944.   10070.
  PER Q=      4.9     12.5      5.7      8.0      7.5      3.3      4.7      3.5      3.6      4.5      1.2     37.0
   AREA=      8.0     13.0      7.6     10.7     10.5     11.9     16.5     21.2     12.3      7.3      7.7     74.3
    VEL=      5.5      8.7      6.7      6.8      6.5      2.5      2.6      1.5      2.6      5.5      1.4      4.5
  DEPTH=      1.2      2.3      1.6      1.6      1.5       .8       .9       .2       .4      1.2       .1       .7

STA=   10070.   10116.   10123.
  PER Q=      3.4       .3
   AREA=     18.1      2.0
    VEL=      1.7      1.2
  DEPTH=       .4       .3

1490 NH CARD USED
*SECNO 1.983

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     1.983      3.05   1734.85   1734.85       .00   1735.33       .48      8.61       .06   1734.20
     900.0     462.6     385.9      51.5     128.4      51.6      29.0       2.6       3.8   1734.10
       .03      3.60      7.48      1.78      .053      .035      .070      .000   1731.80   9808.14
   .015559      525.      507.      505.        15        11         0       .00    243.97  10080.59


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   19AUG94      10:39:56                                                                                    PAGE   10

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


FLOW DISTRIBUTION FOR SECNO=      1.98          CWSEL=   1734.85

STA=    9808.    9828.    9851.    9863.    9884.    9890.    9895.    9910.    9975.    9988.   10019.   10045.   10081.
  PER Q=      4.5      3.6      3.4      6.5      9.8     10.2      5.7      3.8      3.8     42.9      3.8      1.9
   AREA=     15.9     15.4     11.7     18.4     12.4     12.1     12.5     16.9     13.1     51.6     16.9     12.1
    VEL=      2.6      2.1      2.6      3.2      7.1      7.6      4.1      2.0      2.6      7.5      2.1      1.4
  DEPTH=       .8       .7      1.0       .9      2.0      2.2       .8       .3      1.0      1.7       .6       .3

CCHV=     .100 CEHV=     .300
*SECNO 2.105
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.105      2.67   1749.67   1749.67       .00   1750.05       .38     10.81       .01   1748.90
     900.0      99.7     522.6     277.7      56.6      83.8     113.8       6.1       8.1   1749.10
       .07      1.76      6.24      2.44      .080      .035      .070      .000   1747.00   9891.69
   .017508      675.      644.      655.        12         9         0       .00    321.04  10212.74


FLOW DISTRIBUTION FOR SECNO=      2.11          CWSEL=   1749.67

STA=    9892.    9944.    9990.   10061.   10079.   10091.   10107.   10136.   10159.   10190.   10209.   10213.
  PER Q=      6.0      5.1     58.1      4.4      6.0      4.1      4.6      4.2      3.8      3.8       .0
   AREA=     29.9     26.7     83.8     15.5     15.9     13.9     19.3     16.7     17.6     14.6       .3
    VEL=      1.8      1.7      6.2      2.6      3.4      2.7      2.1      2.3      1.9      2.3       .5
  DEPTH=       .6       .6      1.2       .9      1.3       .9       .7       .7       .6       .8       .1

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T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3      WASH A                    L. CULLER - (602)244-8100
T4      JOB 15183   PR15183\ETC\WASHA\SP3A(2).RAT   RUN  1
T5      SPECIAL PROBLEM NO. 3A

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                5                           -1                                      1712

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      4                  -1                                                                     15

1
   19AUG94      10:39:56                                                                                    PAGE   12

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
```

```
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 *PROF 4
0

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO 1.887

 3265 DIVIDED FLOW

 3720 CRITICAL DEPTH ASSUMED
      1.887      2.60   1722.40   1722.40   1712.00   1722.72       .32       .00       .00   1722.60
     1200.0     689.8     457.8      52.4     162.4      88.7      27.0        .0        .0   1722.00
        .00      4.25      5.16      1.94      .048      .035      .070      .000   1719.80   9644.53
    .019363      415.      428.      400.         0        20         0       .00    467.79  10124.75


 FLOW DISTRIBUTION FOR SECNO=      1.89          CWSEL=   1722.40

 STA=    9645.    9651.    9657.    9662.    9668.    9675.    9690.    9709.    9832.    9872.    9883.    9949.   10070.
   PER Q=      4.4     10.7      5.1      7.2      6.8      3.3      4.7      3.7      3.7      5.9      2.2     38.2
    AREA=      8.9     13.7      8.2     11.5     11.4     13.9     19.1     27.8     19.5     12.1     16.3     88.7
     VEL=      5.9      9.4      7.4      7.4      7.1      2.9      2.9      1.6      2.3      5.8      1.6      5.2
   DEPTH=      1.3      2.4      1.7      1.7      1.6       .9      1.0       .2       .5      1.2       .2       .8

 STA=   10070.   10116.   10125.
   PER Q=      4.0       .4
    AREA=     24.0      3.0
     VEL=      2.0      1.5
   DEPTH=       .5       .3

 1490 NH CARD USED
 *SECNO 1.983

 3265 DIVIDED FLOW

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      1.983      3.28   1735.08   1735.08       .00   1735.60       .52      8.77       .06   1734.20
     1200.0     635.1     470.7      94.3     165.4      58.7      44.7       3.2       4.4   1734.10
        .03      3.84      8.01      2.11      .054      .035      .070      .000   1731.80   9803.67
    .015006      525.      507.      505.        19        11         0       .00    272.59  10090.69


1                                                                                                          PAGE   13
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 FLOW DISTRIBUTION FOR SECNO=      1.98          CWSEL=   1735.08

 STA=    9804.    9828.    9851.    9863.    9874.    9884.    9890.    9895.    9910.    9975.    9988.   10019.   10041.
   PER Q=      4.9      4.3      3.6      3.1      4.1      8.7      8.9      6.4      5.0      4.0     39.2      3.5
    AREA=     21.1     20.7     14.4     13.1     10.2     13.8     13.4     15.9     26.5     16.2     58.7     18.5
     VEL=      2.8      2.5      3.0      2.8      4.8      7.5      8.0      4.8      2.3      3.0      8.0      2.3
   DEPTH=       .9       .9      1.2      1.1      1.1      2.2      2.4      1.1       .4      1.2      1.9       .8

 STA=   10041.   10074.   10091.
   PER Q=      4.1       .2
    AREA=     23.1      3.2
     VEL=      2.1       .9
   DEPTH=       .7       .2

 CCHV=     .100 CEHV=     .300
 *SECNO 2.105
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      2.105      2.82   1749.82   1749.82       .00   1750.29       .47     10.96       .00   1748.90
     1200.0     151.2     662.9     385.9      72.2      94.7     137.6       7.6       9.0   1749.10
        .06      2.09      7.00      2.81      .080      .035      .070      .000   1747.00   9886.39
    .018691      675.      644.      655.        13         9         0       .00    329.61  10216.00


 FLOW DISTRIBUTION FOR SECNO=      2.11          CWSEL=   1749.82

 STA=    9886.    9944.    9971.    9990.   10061.   10079.   10091.   10107.   10136.   10159.   10190.   10209.   10216.
   PER Q=      6.7      3.3      2.5     55.2      4.5      5.6      4.2      5.0      4.5      4.4      4.0       .1
    AREA=     38.4     19.6     14.2     94.7     18.3     17.8     16.4     23.7     20.3     22.4     17.5      1.1
     VEL=      2.1      2.0      2.1      7.0      2.9      3.8      3.0      2.5      2.6      2.3      2.7       .9
   DEPTH=       .7       .7       .8      1.3      1.0      1.5      1.0       .8       .9       .7       .9       .2

1                                                                                                          PAGE   14
    19AUG94       10:39:56


 T1       FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
 T2       RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
 T3       WASH A                L. CULLER - (602)244-8100
 T4       JOB 15183   PR15183\ETC\WASHA\SP3A(2).RAT   RUN  1
 T5       SPECIAL PROBLEM NO. 3A

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
```

```
                 6                          -1                                  1712
 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN       ALLDC     IBW       CHNIM     ITRACE
      15                  -1                                                                    15


1
   19AUG94      10:39:56                                                                                                PAGE   15

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 5
0

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO 1.887

 3265 DIVIDED FLOW

 3720 CRITICAL DEPTH ASSUMED
     1.887      2.62   1722.42   1722.42   1712.00   1722.78       .36       .00       .00   1722.60
    1310.0     750.5     500.9      58.6     168.1      90.7      28.0        .0        .0   1722.00
       .00      4.46      5.52      2.09      .048      .035      .070      .000   1719.80   9644.48
   .021585      415.      428.      400.         0        20         0       .00    469.29  10124.98


 FLOW DISTRIBUTION FOR SECNO=      1.89          CWSEL=   1722.42

 STA=    9644.    9651.    9657.    9662.    9668.    9675.    9690.    9709.    9785.    9872.    9883.    9950.   10070.
   PER Q=      4.3     10.5      5.0      7.0      6.7      3.3      4.7      3.1      4.6      5.8      2.3     38.2
    AREA=      9.1     13.8      8.3     11.7     11.5     14.1     19.4     21.5     28.9     12.3     17.6     90.7
     VEL=      6.2     10.0      7.8      7.9      7.6      3.1      3.1      1.9      2.1      6.2      1.7      5.5
   DEPTH=      1.3      2.5      1.8      1.8      1.7      1.0      1.0       .3       .3      1.2       .3       .8

 STA=   10070.   10116.   10125.
   PER Q=      4.1       .4
    AREA=     24.8      3.2
     VEL=      2.2      1.6
   DEPTH=       .5       .4

 1490 NH CARD USED
 *SECNO 1.983

 3265 DIVIDED FLOW

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
     1.983      3.36   1735.16   1735.16       .00   1735.69       .53      9.13       .05   1734.20
    1310.0     699.1     499.3     111.6     179.7      61.2      50.7       3.4       4.5   1734.10
       .03      3.89      8.16      2.20      .054      .035      .070      .000   1731.80   9801.97
   .014717      525.      507.      505.        11        11         0       .00    287.82  10094.18


1
   19AUG94      10:39:56                                                                                                PAGE   16

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 FLOW DISTRIBUTION FOR SECNO=      1.98          CWSEL=   1735.16

 STA=    9802.    9828.    9851.    9863.    9874.    9884.    9890.    9895.    9910.    9975.    9988.   10019.   10041.
   PER Q=      5.0      4.4      3.6      3.2      4.2      8.3      8.5      6.5      5.5      4.1     38.1      3.8
    AREA=     23.2     22.5     15.4     14.1     10.9     14.4     13.8     17.1     31.0     17.2     61.2     20.4
     VEL=      2.8      2.6      3.1      2.9      5.0      7.6      8.1      5.0      2.3      3.1      8.2      2.4
   DEPTH=       .9      1.0      1.3      1.2      1.2      2.3      2.5      1.2       .5      1.3      2.0       .9

 STA=   10041.   10074.   10094.
   PER Q=      4.4       .3
    AREA=     25.7      4.6
     VEL=      2.2      1.0
   DEPTH=       .8       .2

 CCHV=     .100 CEHV=     .300
 *SECNO 2.105
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
     2.105      2.88   1749.88   1749.88       .00   1750.37       .49     10.88       .00   1748.90
    1310.0     171.3     712.3     426.5      78.0      98.7     146.3       8.1       9.2   1749.10
       .06      2.19      7.21      2.91      .080      .035      .070      .000   1747.00   9884.46
   .018810      675.      644.      655.        14         9         0       .00    332.73  10217.19


 FLOW DISTRIBUTION FOR SECNO=      2.11          CWSEL=   1749.88

 STA=    9884.    9944.    9971.    9990.   10061.   10079.   10091.   10107.   10136.   10159.   10190.   10209.   10217.
   PER Q=      7.0      3.5      2.6     54.4      4.5      5.5      4.2      5.2      4.6      4.5      4.0       .1
    AREA=     41.7     21.1     15.2     98.7     19.3     18.5     17.3     25.4     21.6     24.1     18.6      1.5
     VEL=      2.2      2.2      2.2      7.2      3.1      3.9      3.2      2.7      2.8      2.5      2.8      1.0
```

DEPTH= .7 .8 .8 1.4 1.1 1.5 1.1 .9 .9 .8 1.0 .2

1

THIS RUN EXECUTED 19AUG94 10:40:00

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

WASH A

SUMMARY PRINTOUT

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	SSTA	ENDST	QLOB	QROB	ELTRD
*	1.887	1719.80	1722.03	600.00	3.80	.00	284.54	2.23	9645.49	10120.29	396.71	12.28	.00
*	1.887	1719.80	1722.09	650.00	3.91	.00	292.17	2.29	9645.36	10120.91	417.21	15.83	.00
*	1.887	1719.80	1722.27	900.00	4.48	.00	392.59	2.47	9644.88	10123.12	534.48	32.84	.00
*	1.887	1719.80	1722.40	1200.00	5.16	.00	467.79	2.60	9644.53	10124.75	689.78	52.40	.00
*	1.887	1719.80	1722.42	1310.00	5.52	.00	469.29	2.62	9644.48	10124.98	750.54	58.56	.00
*	1.983	1731.80	1734.56	600.00	6.73	12.53	204.47	2.76	9811.67	10066.14	292.50	19.33	.00
*	1.983	1731.80	1734.63	650.00	6.77	12.54	218.12	2.83	9810.83	10070.12	321.66	24.08	.00
*	1.983	1731.80	1734.85	900.00	7.48	12.58	243.97	3.05	9808.14	10080.59	462.56	51.54	.00
*	1.983	1731.80	1735.08	1200.00	8.01	12.68	272.59	3.28	9803.67	10090.69	635.05	94.27	.00
*	1.983	1731.80	1735.16	1310.00	8.16	12.75	287.82	3.36	9801.97	10094.18	699.08	111.58	.00
*	2.105	1747.00	1749.47	600.00	5.45	14.90	310.79	2.47	9897.97	10208.76	51.39	170.50	.00
*	2.105	1747.00	1749.51	650.00	5.54	14.88	312.71	2.51	9896.68	10209.39	59.64	188.62	.00
*	2.105	1747.00	1749.67	900.00	6.24	14.82	321.04	2.67	9891.69	10212.74	99.72	277.72	.00
*	2.105	1747.00	1749.82	1200.00	7.00	14.74	329.61	2.82	9886.39	10216.00	151.20	385.94	.00
*	2.105	1747.00	1749.88	1310.00	7.21	14.71	332.73	2.88	9884.46	10217.19	171.28	426.46	.00

1

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      1.887  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.887  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.887  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.887  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.887  PROFILE=  5  CRITICAL DEPTH ASSUMED

CAUTION SECNO=      1.983  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.983  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      1.983  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.983  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      1.983  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      1.983  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.983  PROFILE=  3  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      1.983  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.983  PROFILE=  4  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      1.983  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.983  PROFILE=  5  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      2.105  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.105  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.105  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.105  PROFILE=  2  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.105  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.105  PROFILE=  3  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.105  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.105  PROFILE=  4  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.105  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.105  PROFILE=  5  MINIMUM SPECIFIC ENERGY
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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    19AUG94    TIME   10:40:20 *
 *****************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                  X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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1
   19AUG94      10:40:20                                                                    PAGE    1
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THIS RUN EXECUTED 19AUG94 10:40:20

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
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```
T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3      WASH AS     L. CULLER - (602)244-8100
T4      JOB 15183   PR15183\ETC\WASHA\SP1AS.RAT     RUN  1
T5      RATING CURVE FOR BREAKOUT FLOW AT CROSS SECTION 0.512
T6      SPECIAL PROBLEM NO. 1AS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                2                           -1                                      1629

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1                  -1                                                                      15

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38        42         1        43        26        51         4         8        53        54
     13        15        40

QT        5       250       300       350       450       500
NC      .07       .02       .04       .1        .3
NH        5       .07    9899.7       .04    9930.3       .07    9991.8       .03   10032.9       .02
NH    10049.
X1     0.411       27    9991.8   10032.9       545       565       544
X3                                 9899.7
GR    1630.9    9711.1    1630.8    9726.8    1630.6    9736.1    1630.5    9750.6    1630.2    9774.6
GR    1630.3    9786.9    1630.3    9803.9    1629.5    9820.4    1629.7    9843.0    1627.7    9849.5
GR    1629.9    9861.1    1629.8    9880.0    1629.9    9899.7    1628.5    9905.6    1628.4    9913.5
GR    1628.8    9923.0    1630.1    9930.3    1630.2    9946.7    1629.6    9958.3    1630.2    9967.8
GR    1630.3    9978.6    1630.3    9991.8    1626.8   10000.0    1626.8   10014.5    1629.0   10025.3
GR    1630.6   10032.9    1630.4   10049.0       0.0       0.0       0.0       0.0       0.0       0.0

NH        5       .07    9995.4       .04   10020.3       .07   10206.5       .04   10237.4       .07
NH    10317.
X1     0.512       36    9995.4   10020.3       470       515       533
X3                                 9989.3              10119.8
GR    1639.7    9989.3    1639.1    9995.4    1636.9   10000.0    1637.0   10005.6    1637.6   10012.2
GR    1638.9   10020.3    1639.5   10032.3    1639.7   10034.9    1639.8   10052.1    1639.5   10066.2
GR    1639.3   10081.7    1639.1   10089.8    1639.4   10104.7    1639.9   10120.3    1639.9   10133.1
GR    1639.7   10149.7    1639.2   10162.4    1638.5   10176.8    1638.3   10183.9    1638.7   10194.7
GR    1638.2   10201.1    1638.7   10206.5    1637.3   10211.9    1637.6   10221.3    1637.5   10229.7
GR    1638.6   10237.4    1638.7   10242.8    1638.6   10250.9    1638.4   10263.0    1638.3   10271.4
GR    1637.4   10282.4    1637.2   10287.2    1638.0   10290.9    1638.5   10296.1    1639.0   10304.4
```

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1
   19AUG94      10:40:20                                                                    PAGE    2

GR    1638.9   10317.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
1
   19AUG94      10:40:20                                                                    PAGE    3

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1
0

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO  .411
```

```
3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9899.7   10049.0  TYPE=      1  TARGET=    -9899.700
      .411      1.86   1628.66   1628.66   1629.00   1629.26       .60       .00       .00   1630.30
     250.0       3.0     247.0        .0       2.5      39.6        .0        .0        .0   1630.60
       .00      1.19      6.24       .00      .040      .030      .000      .000   1626.80   9904.92
   .010279      545.      544.      565.         0        10         0       .00     42.82  10023.64


FLOW DISTRIBUTION FOR SECNO=       .41          CWSEL=   1628.66

STA=    9905.    9914.    9920.   10025.
  PER Q=       .9       .3     98.8
   AREA=      1.7       .8     39.6
    VEL=      1.3      1.0      6.2
  DEPTH=       .2       .1      1.4

1490 NH CARD USED
*SECNO  .512

3265 DIVIDED FLOW

3280 CROSS SECTION       .51 EXTENDED       .23 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9989.3   10119.8  TYPE=      1  TARGET=      130.500
      .512      2.23   1639.13   1639.13       .00   1639.85       .72      7.58       .04   1639.10
     250.0        .0     249.6       .4        .0      36.5        .5        .5        .4   1638.90
       .02       .03      6.84       .68      .070      .040      .070      .000   1636.90   9995.13
   .021015      470.      533.      515.         4        11         0       .00     32.04  10091.10


1
   19AUG94      10:40:20                                                                                    PAGE    4

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=       .51          CWSEL=   1639.13

STA=    9995.   10020.   10025.   10091.
  PER Q=      99.9       .1       .0
   AREA=      36.5       .5       .0
    VEL=       6.8       .7       .0
  DEPTH=       1.5       .1       .0

1
   19AUG94      10:40:20                                                                                    PAGE    5


T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3      WASH AS                  L. CULLER - (602)244-8100
T4      JOB 15183   PR15183\ETC\WASHA\SP30AS.RAT    RUN   I
T5      RATING CURVE FOR BREAK OUT FLOW AT CROSS SECTION 0.599
T6      SPECIAL PROBLEM 30

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                 3                              -1                                           1629

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      2                    -1                                                                            15

1
   19AUG94      10:40:20                                                                                    PAGE    6

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*PROF 2
0

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO  .411

3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9899.7   10049.0  TYPE=      1  TARGET=    -9899.700
      .411      2.08   1628.88   1628.88   1629.00   1629.47       .59       .00       .00   1630.30
     300.0      11.3     288.7        .0       6.4      45.8        .0        .0        .0   1630.60
       .00      1.78      6.30       .00      .040      .030      .000      .000   1626.80   9904.00
   .009282      545.      544.      565.         0        10         0       .00     49.02  10024.71


FLOW DISTRIBUTION FOR SECNO=       .41          CWSEL=   1628.88
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```
STA=    9904.    9906.    9914.    9923.    9923.   10025.
  PER Q=       .1      2.3      1.4       .0     96.2
   AREA=       .3      3.4      2.7       .0     45.8
    VEL=      1.2      2.0      1.5       .0      6.3
  DEPTH=       .2       .4       .3       .0      1.5

1490 NH CARD USED
*SECNO  .512

3265 DIVIDED FLOW

3280 CROSS SECTION       .51 EXTENDED       .63 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9989.3   10119.8  TYPE=      1  TARGET=      130.500
      .512      2.63   1639.53   1639.53       .00   1640.09       .56      5.66       .00   1639.10
     300.0       .8     286.4      12.8        .9      46.5      13.0        .7        .8   1638.90
       .02       .84      6.16       .99      .070      .040      .070      .000   1636.90   9991.06
   .012358      470.      533.      515.         7        11         0       .00     85.35  10108.67


1
   19AUG94      10:40:20                                                                                    PAGE    7

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


FLOW DISTRIBUTION FOR SECNO=       .51          CWSEL=   1639.53

STA=    9991.    9995.   10020.   10032.   10082.   10090.   10105.   10109.
  PER Q=       .3     95.5      1.5       .4      1.0      1.4       .0
   AREA=       .9     46.5      3.9      2.0      2.7      4.1       .3
    VEL=       .8      6.2      1.1       .6      1.1      1.0       .4
  DEPTH=       .2      1.9       .3       .0       .3       .3       .1

1
   19AUG94      10:40:20                                                                                    PAGE    8

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3      WASH AS                L. CULLER - (602)244-8100
T4      JOB 15183   PR15183\ETC\WASHA\SP30AS.RAT    RUN    I
T5      RATING CURVE FOR BREAK OUT FLOW AT CROSS SECTION 0.599
T6      SPECIAL PROBLEM 30

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 4                            -1                                    1629

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      3                  -1                                                                      15

1
   19AUG94      10:40:20                                                                                    PAGE    9

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*PROF 3
0

CCHV=      .100 CEHV=      .300
1490 NH CARD USED
*SECNO  .411

3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9899.7   10049.0  TYPE=      1  TARGET=    -9899.700
      .411      2.25   1629.05   1629.05   1629.00   1629.66       .61       .00       .00   1630.30
     350.0      21.5     328.5        .0       9.7      50.9        .0        .0        .0   1630.60
       .00      2.20      6.46       .00      .040      .030      .000      .000   1626.80   9903.30
   .008970      545.      544.      565.         0         4         0       .00     51.86  10025.52


FLOW DISTRIBUTION FOR SECNO=       .41          CWSEL=   1629.05

STA=    9903.    9906.    9914.    9923.    9924.   10033.
  PER Q=       .3      3.3      2.5       .0     93.9
   AREA=       .6      4.7      4.2       .2     50.9
    VEL=      1.5      2.5      2.1       .9      6.5
  DEPTH=       .3       .6       .4       .1      1.7

1490 NH CARD USED
*SECNO  .512

3265 DIVIDED FLOW

3280 CROSS SECTION       .51 EXTENDED       .83 FEET
```

```
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9989.3   10119.8  TYPE=      1  TARGET=      130.500
      .512      2.83   1639.73   1639.73       .00   1640.26       .52      5.15       .01   1639.10
     350.0       2.1     315.4      32.5       2.0      51.6      26.6        .8       1.0   1638.90
       .03      1.04      6.11      1.22      .070      .040      .070      .000   1636.90   9989.30
   .010565      470.      533.      515.         9        11         0       .00    111.25  10115.10


1
   19AUG94      10:40:20                                                                                    PAGE   10

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=       .51          CWSEL=   1639.73

STA=    9989.    9995.   10020.   10082.   10105.   10115.
  PER Q=       .6      90.1      4.4      4.5       .3
   AREA=      2.0      51.6     13.3     11.5      1.7
    VEL=      1.0       6.1      1.2      1.4       .7
  DEPTH=       .3       2.1       .2       .5       .2

1
   19AUG94      10:40:20                                                                                    PAGE   11

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3      WASH AS                L. CULLER - (602)244-8100
T4      JOB 15183   PR15183\ETC\WASHA\SP30AS.RAT    RUN   I
T5      RATING CURVE FOR BREAK OUT FLOW AT CROSS SECTION 0.599
T6      SPECIAL PROBLEM 30

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 5                            -1                                    1629

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      4                  -1                                                                      15

1
   19AUG94      10:40:20                                                                                    PAGE   12

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4
0

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO  .411

3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9899.7   10049.0  TYPE=      1  TARGET=    -9899.700
      .411      2.51   1629.31   1629.31   1629.00   1629.98       .67       .00       .00   1630.30
     450.0      43.9     406.1        .0      15.6      59.2        .0        .0        .0   1630.60
       .00      2.81      6.86       .00      .040      .030      .000      .000   1626.80   9902.20
   .008963      545.      544.      565.         0         7         0       .00     56.29  10026.76

FLOW DISTRIBUTION FOR SECNO=       .41          CWSEL=   1629.31

STA=    9902.    9906.    9914.    9923.    9926.   10033.
  PER Q=       .6       4.8      4.2       .2      90.2
   AREA=      1.4       6.8      6.7       .7      59.2
    VEL=      1.9       3.2      2.8      1.4       6.9
  DEPTH=       .4        .9       .7       .3       1.8

1490 NH CARD USED
*SECNO  .512
3280 CROSS SECTION       .51 EXTENDED      1.08 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9989.3   10119.8  TYPE=      1  TARGET=      130.500
      .512      3.08   1639.98   1639.98       .00   1640.51       .53      4.99       .01   1639.10
     450.0       5.1     370.0      74.9       3.6      57.8      50.5       1.1       1.1   1638.90
       .03      1.43      6.40      1.48      .070      .040      .070      .000   1636.90   9989.30
   .009962      470.      533.      515.        11         8         0       .00    130.50  10119.80

FLOW DISTRIBUTION FOR SECNO=       .51          CWSEL=   1639.98

1
   19AUG94      10:40:20                                                                                    PAGE   13
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```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 STA=    9989.     9995.    10020.    10032.    10082.    10105.    10120.
   PER Q=      1.1      82.2       3.8       5.0       6.7       1.2
    AREA=      3.6      57.8       9.4      18.7      17.3       5.1
     VEL=      1.4       6.4       1.8       1.2       1.8       1.0
   DEPTH=       .6       2.3        .8        .4        .8        .3
1
   19AUG94      10:40:20                                                                                PAGE   14

 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
 T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
 T3      WASH AS                  L. CULLER - (602)244-8100
 T4      JOB 15183   PR15183\ETC\WASHA\SP30AS.RAT    RUN   I
 T5      RATING CURVE FOR BREAK OUT FLOW AT CROSS SECTION 0.599
 T6      SPECIAL PROBLEM 30

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 6                            -1                                    1629

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      15                  -1                                                                      15


1
   19AUG94      10:40:20                                                                                PAGE   15

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 5
0
 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO  .411

 3265 DIVIDED FLOW

 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=     9899.7   10049.0  TYPE=      1  TARGET=    -9899.700
      .411      2.61   1629.41   1629.41   1629.00   1630.12       .71       .00       .00   1630.30
     500.0      55.5     444.5        .0      18.1      62.6        .0        .0        .0   1630.60
       .00      3.06      7.10       .00      .040      .030      .000      .000   1626.80   9901.76
   .009169      545.      544.      565.         0        10         0       .00     58.06  10027.26

 FLOW DISTRIBUTION FOR SECNO=       .41          CWSEL=   1629.41

 STA=    9902.     9906.     9914.     9923.     9926.    10033.
   PER Q=       .7       5.3       4.8       .3      88.9
    AREA=      1.8       7.6       7.7      1.1      62.6
     VEL=      2.1       3.5       3.1      1.6       7.1
   DEPTH=       .5       1.0        .8       .3       1.9

 1490 NH CARD USED
 *SECNO  .512
 3280 CROSS SECTION       .51 EXTENDED      1.17 FEET

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=     9989.3   10119.8  TYPE=      1  TARGET=      130.500
      .512      3.17   1640.07   1640.07       .00   1640.62       .55      5.09       .02   1639.10
     500.0       6.4     397.5      96.0       4.1      60.0      59.2       1.2       1.1   1638.90
       .03      1.57      6.62      1.62      .070      .040      .070      .000   1636.90   9989.30
   .010166      470.      533.      515.        11        11         0       .00    130.50  10119.80

 FLOW DISTRIBUTION FOR SECNO=       .51          CWSEL=   1640.07
1
   19AUG94      10:40:20                                                                                PAGE   16

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 STA=    9989.     9995.    10020.    10032.    10082.    10105.    10120.
   PER Q=      1.3      79.5       4.1       6.2       7.3       1.6
    AREA=      4.1      60.0      10.4      23.0      19.3       6.5
     VEL=      1.6       6.6       1.9       1.4       1.9       1.2
   DEPTH=       .7       2.4        .9        .5        .8        .4
```

THIS RUN EXECUTED 19AUG94 10:40:21

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

WASH AS

SUMMARY PRINTOUT

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	SSTA	ENDST	QLOB	QROB	ELTRD
*	.411	1626.80	1628.66	250.00	6.24	.00	42.82	1.86	9904.92	10023.64	3.04	.00	.00
*	.411	1626.80	1628.88	300.00	6.30	.00	49.02	2.08	9904.00	10024.71	11.31	.00	.00
*	.411	1626.80	1629.05	350.00	6.46	.00	51.86	2.25	9903.30	10025.52	21.47	.00	.00
*	.411	1626.80	1629.31	450.00	6.86	.00	56.29	2.51	9902.20	10026.76	43.90	.00	.00
*	.411	1626.80	1629.41	500.00	7.10	.00	58.06	2.61	9901.76	10027.26	55.52	.00	.00
*	.512	1636.90	1639.13	250.00	6.84	10.46	32.04	2.23	9995.13	10091.10	.00	.37	.00
*	.512	1636.90	1639.53	300.00	6.16	10.65	85.35	2.63	9991.06	10108.67	.78	12.78	.00
*	.512	1636.90	1639.73	350.00	6.11	10.69	111.25	2.83	9989.30	10115.10	2.12	32.50	.00
*	.512	1636.90	1639.98	450.00	6.40	10.68	130.50	3.08	9989.30	10119.80	5.09	74.86	.00
*	.512	1636.90	1640.07	500.00	6.62	10.66	130.50	3.17	9989.30	10119.80	6.42	96.05	.00

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      .411  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .411  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .411  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .411  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .411  PROFILE=  5  CRITICAL DEPTH ASSUMED

CAUTION SECNO=      .512  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .512  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .512  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .512  PROFILE=  2  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .512  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .512  PROFILE=  3  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .512  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .512  PROFILE=  4  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .512  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .512  PROFILE=  5  MINIMUM SPECIFIC ENERGY
```

SECTION 2: HEC - 2 COMPUTER INPUT AND OUTPUT FILES

WASH A

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    17AUG94    TIME   16:28:18 *
 *****************************************
```

```
*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
```

1 17AUG94 16:28:18 PAGE 1

THIS RUN EXECUTED 17AUG94 16:28:18

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************
```

```
T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3      WASH A                    L. CULLER - (602)244-8100
T4      JOB 15183   PR15183\ETC\WASHA\WASHA.IH2    RUN   1

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                2                           -1                                      1507

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
    -1                  -1                                                                      15

J3  VARIABLE CODES FOR SUMMARY PRINTOUT
     38        42         1        43        26        51         4         8        53        54
     13        15        40

QT       1      1080
NC     .08       .08      .035       0.1       0.3
X1   0.000        16    9988.0   10026.0
GR  1512.0    9970.0    1510.0    9978.5    1509.6    9988.0    1505.3    9993.9    1505.4   10000.0
GR  1505.1   10013.1    1507.0   10015.0    1508.2   10023.8    1509.0   10026.0    1507.2   10030.4
GR  1509.6   10036.4    1513.0   10046.3    1517.5   10074.7    1521.8   10085.4    1522.9   10104.7
GR  1522.6   10107.8       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0

NC     .07       .07      .03       0.1       0.3
X1   0.031        15    9975.4   10041.4       160       180       164
GR  1523.7    9913.6    1523.0    9922.8    1521.7    9931.9    1520.7    9940.1    1521.5    9961.5
GR  1521.4    9975.4    1510.5    9985.4    1510.6   10000.0    1510.4   10016.2    1512.9   10029.5
GR  1514.5   10039.4    1522.9   10041.4    1522.9   10056.3    1523.2   10077.3    1523.2   10086.8

X1   0.094        14    9954.2   10028.8       340       290       333
GR  1529.6    9905.9    1529.4    9931.4    1528.0    9941.1    1526.3    9948.7    1526.3    9954.2
GR  1518.3    9968.9    1518.5    9982.9    1518.8    9992.5    1518.2   10000.0    1518.4   10026.0
GR  1528.8   10028.8    1529.7   10036.9    1529.8   10053.3    1529.9   10061.5       0.0       0.0

NC     .06       .06      .03       0.1       0.3
X1   0.181        16    9930.9   10021.1       440       450       459
GR  1540.3    9891.4    1539.7    9909.8    1539.6    9925.1    1539.1    9930.9    1536.4    9941.3
GR  1532.0    9956.3    1531.0    9976.3    1529.7    9982.4    1529.7   10000.0    1529.9   10003.3
GR  1540.1   10021.1    1540.7   10026.8    1539.2   10033.7    1537.2   10040.9    1536.4   10051.5
GR  1536.2   10065.4       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
```

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```
X1   0.241        13    9953.7   10049.6       305       315       317
GR  1544.4    9931.2    1543.4    9953.7    1536.9    9964.3    1536.6    9990.6    1536.2   10000.0
GR  1537.1   10014.7    1538.6   10028.9    1541.1   10049.6    1542.0   10069.3    1542.8   10083.6
GR  1542.9   10091.4    1542.7   10097.8    1542.0   10108.3       0.0       0.0       0.0       0.0

X1   0.347        16    9978.9   10016.1       505       545       560
GR  1553.7    9915.7    1553.6    9940.1    1553.5    9965.2    1553.2    9978.9    1551.2    9987.4
GR  1548.1    9991.0    1547.9    9999.8    1547.8   10000.0    1547.8   10004.9    1553.1   10016.1
GR  1552.8   10028.4    1552.8   10034.5    1552.9   10050.3    1553.1   10067.5    1553.7   10071.0
GR  1552.6   10074.7       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
```

SECTION 0.453 FLOODED AREA IS SHOWN AS SPLIT FLOODED AREA, WITHOUT THE
FLOW OR PROFILE BEING CALCULATED FOR THE SPLIT FLOW.
(SEE SPECIAL PROBLEM NO. 12A)

```
NC     .07       .07      .03       0.1       0.3
NH       5       .07    9989.7       .03   10017.0       .07   10303.4       .04   10321.6       .07
```

```
NH   10414.
X1    0.453        45    9989.7   10017.0       535       525       560
GR   1564.5    9922.2    1564.5    9927.5    1564.4    9954.1    1564.1    9970.4    1563.0    9975.6
GR   1563.6    9982.8    1563.1    9989.7    1558.8    9995.3    1558.8   10000.0    1558.8   10005.9
GR   1563.6   10017.0    1564.9   10028.6    1563.6   10036.3    1563.1   10051.1    1563.2   10055.5
GR   1563.9   10074.9    1564.4   10097.6    1564.3   10116.6    1563.6   10128.3    1564.0   10140.3
GR   1564.7   10152.9    1565.0   10169.7    1565.3   10188.1    1564.6   10218.2    1564.0   10237.6
GR   1562.7   10248.5    1563.7   10254.8    1564.2   10264.8    1563.9   10280.5    1563.4   10292.1
GR   1563.8   10303.4    1563.7   10306.9    1561.0   10309.9    1561.0   10310.5    1563.7   10315.7
GR   1564.0   10321.6    1562.6   10334.3    1563.5   10339.9    1564.3   10349.8    1564.0   10364.5
GR   1564.4   10376.5    1563.9   10385.1    1564.4   10392.7    1564.7   10403.9    1564.9   10414.0
```

A MINOR FLOW BREAKOUT OCCURS AT THE RIGHT END OF SECTION0.550. THE ESTIMATED BREAKOUT FLOW IS SMALL AND THE FLOW INWASH A IS NOT REDUCED. (SEE SPECIAL PROBLEM NO. 11A)

```
NH       5       .07    9977.4       .03   10012.2       .07   10066.4       .04   10097.5       .07
NH   10237.
X1    0.550        29    9977.4   10012.2       495       460       512
GR   1572.8    9863.3    1572.8    9874.0    1572.9    9894.8    1572.7    9918.7    1571.4    9929.4
GR   1572.2    9932.4    1572.4    9958.9    1572.1    9977.4    1571.3    9988.2    1569.9    9992.9
GR   1569.9   10000.0    1570.0   10007.9    1572.2   10012.2    1571.8   10026.1    1571.7   10052.8
GR   1571.8   10066.4    1571.6   10072.3    1570.5   10084.5    1570.9   10088.2    1570.1   10091.5
GR   1571.3   10097.5    1571.2   10110.5    1571.5   10137.5    1572.0   10161.8    1571.8   10173.3
GR   1571.2   10188.5    1571.7   10206.2    1572.0   10226.4    1572.3   10237.0

QT       1      1090
NC     .08       .08       .04       0.1       0.3
X1    0.658        20    9981.0   10012.2       530       575       570
GR   1584.0    9878.2    1584.1    9904.0    1583.7    9927.5    1582.2    9942.8    1581.5    9962.7
GR   1582.3    9981.0    1579.3    9991.9    1579.3   10000.0    1579.3   10007.5    1581.8   10012.2
GR   1581.3   10022.0    1581.3   10049.1    1582.4   10064.8    1582.7   10080.7    1582.4   10095.0
GR   1582.8   10108.0    1582.4   10119.6    1582.4   10125.2    1583.6   10133.3    1583.6   10143.6
```


THE CONFLUENCE WITH WASH A SOUTH IS AT RIVER MILE 0.682. THE DISCHARGE IS NOT CHANGED FROM THE VALUE BELOW THE CONFLUENCE TO THE VALUE ABOVE THE CONFLUENCE UNTIL SECTION 0.820. (SEE SPECIAL PROBLEM NO. 10A)

```
NC     .08       .08      .035       0.1       0.3
NH       5       .08    9970.2      .035   10035.4       .08   10041.5      .035   10083.7       .08
NH   10227.
X1    0.700        28    9970.2   10083.7       195       190       222
GR   1587.5    9924.0    1587.7    9939.3    1587.6    9960.1    1587.4    9970.2    1586.4    9986.5
GR   1583.9    9996.3    1583.8   10000.0    1584.1   10007.0    1585.6   10012.4    1586.0   10025.7
GR   1587.5   10035.4    1588.0   10041.5    1584.7   10055.6    1584.5   10064.7    1584.6   10072.7
GR   1587.6   10083.7    1586.3   10090.8    1586.6   10115.4    1585.3   10117.7    1585.6   10125.1
GR   1585.9   10144.3    1585.6   10166.1    1585.7   10187.0    1586.1   10195.6    1586.1   10208.3
GR   1587.6   10213.0    1588.6   10221.6    1587.8   10227.0       0.0       0.0       0.0       0.0
```

FOREST SERVICE ROAD IS AT RIVER MILE 0.718 (LOW CROSSING, NO STRUCTURE)

```
NC     .07       .07       .04       0.1       0.3
NH       7       .07    9987.7       .04   10010.8       .07   10051.8       .08   10066.0       .03
NH   10198.       .08   10222.0       .02   10283.6
X1    0.723        30    9987.7   10198.0       125        90       121
GR   1590.3    9837.8    1589.9    9859.9    1589.5    9887.8    1588.7    9922.6    1589.2    9934.9
GR   1589.9    9942.0    1588.7    9959.0    1588.4    9987.7    1586.3    9996.9    1586.2   10000.0
GR   1586.3   10002.7    1588.4   10010.8    1587.5   10023.5    1587.3   10039.2    1586.8   10051.8
GR   1585.8   10061.7    1587.0   10066.0    1586.5   10078.5    1586.0   10094.9    1585.6   10124.2
GR   1585.9   10152.4    1586.4   10172.2    1587.3   10198.0    1588.1   10222.0    1588.2   10238.6
GR   1587.8   10251.3    1588.8   10267.7    1589.8   10277.1    1589.4   10281.4    1589.3   10283.6

QT       1      600
NC     .07       .07       .04       0.1       0.3
NH       5       .07    9888.9       .04   9910.2       .07    9979.3       .04   10013.1       .07
NH   10117.
X1    0.820        24    9979.3   10013.1       485       520       512
GR   1598.1    9865.2    1597.9    9876.1    1597.6    9888.9    1596.5    9895.9    1596.6    9903.2
GR   1597.7    9910.2    1597.9    9925.5    1597.6    9943.5    1597.3    9963.3    1597.3    9979.3
GR   1596.7    9987.6    1596.1    9994.8    1596.2   10000.0    1596.3   10008.1    1597.2   10013.1
GR   1597.2   10025.4    1597.2   10035.5    1596.4   10044.2    1595.8   10048.7    1597.7   10061.9
GR   1598.2   10075.9    1598.2   10092.5    1598.2   10098.5    1598.1   10117.0
```

FLOW SPLITTING OCCURS AT CROSS SECTION 0.990, AFFECTS CROSS SECTION 0.902 AND RE-ENTERS WASH A AT CROSS SECTION 0.820. FLOW IN WASH A IS REDUCED TO 350 CFS. THE REMAINING 250 CFS ENTERS TRIBUTARY 6 IN THE LEFT OVERBANK. (SEE SPECIAL PROBLEM NO. 9A)

```
NH       7       .07    9752.3       .04    9820.2       .07    9898.0       .04    9914.2       .07
NH   9984.2      .035   10015.8       .07   10222.0
```



```
X1    0.902        38    9984.2   10015.8       420       420       433
GR   1606.4    9736.9    1606.2    9752.3    1605.5    9764.8    1603.8    9776.9    1605.9    9785.3
GR   1606.2    9795.8    1605.3    9809.9    1606.6    9820.2    1606.8    9840.3    1607.4    9858.3
GR   1607.4    9874.0    1607.0    9886.1    1606.1    9898.0    1604.7    9906.7    1606.1    9914.2
GR   1606.2    9926.1    1606.3    9944.0    1606.5    9962.3    1606.6    9984.2    1605.8    9991.6
GR   1605.9   10000.0    1606.0   10008.6    1606.6   10015.8    1606.4   10035.4    1606.3   10048.6
GR   1606.1   10058.1    1606.3   10066.4    1606.1   10078.2    1606.6   10096.7    1606.7   10112.9
GR   1607.0   10129.2    1606.9   10137.8    1606.5   10152.2    1606.7   10161.4    1607.2   10181.0
GR   1607.2   10184.2    1607.5   10205.6    1607.5   10222.0
```

```
NC      .07       .07       .04       0.1       0.3
NH        5       .07    9748.1       .04    9802.1       .07    9986.4      .035   10066.8       .07
NH    10109.
X1     0.990        28    9986.4   10066.8       455       455       465
GR    1616.8   9728.69    1616.8    9728.7    1616.7    9748.1    1615.2    9762.7    1614.7    9769.9
GR    1615.9    9779.1    1615.1    9790.2    1614.3    9795.4    1615.9    9802.1    1615.8    9810.0
GR    1615.2    9817.3    1615.7    9832.2    1615.7    9851.8    1615.6    9872.9    1615.6    9901.2
GR    1616.3    9922.2    1616.1    9928.9    1616.2    9944.3    1615.8    9956.9    1616.1    9977.8
GR    1616.0    9986.4    1614.8    9995.0    1614.7   10000.0    1615.0   10010.0    1615.4   10025.0
GR    1615.0   10038.4    1615.8   10066.8    1616.2   10091.2    1616.1   10109.0
```

FLOW SPLITTING OCCURS BELOW CROSS SECTION 1.306, AFFECTS CROSS SECTIONS 1.117 AND 1.208, AND RE-ENTERS WASH A AT CROSS SECTION 0.990. FLOW IN WASH A IS REDUCED TO 165 CFS. THE REMAINING 380 CFS ENTERS TRIBUTARIES IN THE RIGHT OVERBANK. (SEE SPECIAL PROBLEM NO. 8A) AN ADDITIONAL 55 CFS FROM WASH A SOUTH ENTERS WASH A AT CROSS SECTION 0.990. (SEE SPECIAL PROBLEM NO. 1AS)

```
NC      .07       .07      .035       0.1       0.3
NH        7       .07    9957.1      .035   10009.0       .07   10117.6       .04   10134.8       .07
NH    10228.      .04   10241.1       .07   10315.0
X1     1.117        30    9957.1   10009.0       655       605       671
GR    1630.0    9906.7    1630.4    9922.7    1630.2    9937.6    1630.4    9957.1    1628.9    9973.4
GR    1628.2    9982.5    1627.7    9991.9    1627.7   10000.0    1630.3   10009.0    1630.2   10023.4
GR    1630.2   10042.1    1630.2   10061.5    1629.8   10077.3    1628.9   10091.9    1628.1   10108.0
GR    1627.9   10117.6    1625.5   10127.0    1628.1   10134.8    1628.3   10144.8    1628.7   10167.0
GR    1629.2   10185.5    1629.7   10204.1    1629.1   10214.9    1627.8   10228.0    1626.3   10234.1
GR    1628.4   10241.1    1628.6   10264.2    1628.7   10283.6    1629.5   10303.4    1629.5   10315.0

QT        1       545
NH        9       .07    9984.3      .035   10009.7       .07   10100.4       .04   10113.2       .07
NH    10189.      .04   10220.3       .07   10402.2       .04   10439.3       .07   10520.8
X1     1.208        56    9984.3   10009.7       475       435       480
GR    1640.1    9869.2    1639.8    9889.4    1639.8    9907.9    1639.4    9927.4    1639.6    9948.7
GR    1639.6    9965.9    1639.7    9984.3    1636.8    9993.7    1636.9   10000.0    1637.0   10005.2
GR    1638.9   10009.7    1639.0   10017.7    1639.1   10035.1    1639.0   10059.7    1638.8   10079.3
GR    1639.0   10090.1    1638.4   10100.4    1636.4   10104.6    1638.0   10113.2    1638.7   10125.8
GR    1638.9   10140.3    1639.2   10156.7    1639.0   10175.0    1638.7    10189.    1637.3   10193.5
GR    1638.1   10209.3    1638.8   10220.3    1638.5   10233.3    1639.0   10244.8    1639.2   10259.3
GR    1638.8   10280.5    1638.7   10299.4    1637.9   10311.7    1637.0   10319.7    1638.0   10325.6
GR    1638.2   10327.0    1639.0   10335.0    1639.0   10349.6    1638.5   10365.1    1638.4   10380.6
GR    1638.4   10389.1    1638.2   10402.2    1637.8   10409.2    1636.2   10412.2    1637.7   10416.7
GR    1638.1   10422.7    1637.9   10431.4    1636.8   10435.7    1638.2   10439.3    1638.7   10452.5
```



```
GR    1638.2   10463.5    1638.6   10475.0    1638.9   10485.3    1639.0   10491.7    1639.2   10509.0
GR    1639.7   10520.8
```

A MINOR FLOW BREAKOUT OCCURS AT THE LEFT END OF SECTION 1.306. THE ESTIMATED BREAKOUT FLOW IS SMALL AND THE FLOW IN WASH A IS NOT REDUCED. (SEE SPECIAL PROBLEM NO. 7A)

```
NC      .08       .08       .04       0.1       0.3
X1     1.306        27    9990.4   10018.8       500       445       517
GR    1651.3    9853.7    1651.5    9872.8    1650.9    9894.3    1650.8    9917.4    1650.3    9935.3
GR    1650.6    9953.7    1648.5    9957.5    1650.8    9961.3    1650.6    9976.9    1650.3    9990.4
GR    1649.0    9997.3    1650.0   10000.0    1648.6   10010.4    1650.0   10018.8    1649.3   10031.8
GR    1649.3   10046.3    1649.8   10060.6    1650.0   10079.7    1648.9   10097.6    1649.7   10111.9
GR    1649.6   10125.7    1649.4   10148.9    1649.2   10166.7    1649.8   10179.7    1649.9   10186.8
GR    1649.3   10202.1    1650.2   10210.1

NC      .08       .08       .04       0.1       0.3
X1     1.367        14    9991.0   10050.8       295       385       322
GR    1658.5   9918.79    1658.5    9918.8    1657.9    9949.1    1658.2    9964.5    1657.6    9978.0
GR    1657.3    9991.0    1656.5    9996.0    1656.6   10000.0    1656.7   10015.0    1657.2   10031.4
GR    1657.7   10050.8    1658.1   10082.4    1659.3   10107.3    1659.7   10124.7
```

THE CONFLUENCE WITH WASH A SOUTH IS AT RIVER MILE 1.586. THE DISCHARGE IS CHANGED FROM THE VALUE BELOW THE CONFLUENCE TO THE VALUE ABOVE THE AT CROSS SECTION 1.472. (SEE SPECIAL PROBLEM NO. 5A)

```
QT        1      1100
NH        9       .08    9997.7      .035   10031.3       .08   10044.5       .04   10062.8       .08
NH    10155.      .035   10189.1       .08   10377.8       .04   10392.2       .08   10430.5
X1     1.472        40    9997.7   10189.1       545       655       554
GR    1671.9    9857.1    1671.2    9888.6    1670.5    9924.1    1670.7    9954.2    1670.1    9984.9
GR    1669.9    9997.7    1669.0   10000.0    1669.3   10011.9    1669.7   10021.4    1669.9   10031.3
GR    1669.5   10044.5    1668.8   10052.4    1669.5   10062.8    1669.6   10084.3    1669.5   10095.2
GR    1669.2   10119.1    1668.6   10137.2    1668.6   10155.0    1667.6   10158.2    1668.4   10169.0
GR    1668.4   10177.3    1667.5   10183.7    1668.4   10189.1    1669.0   10209.9    1669.0   10238.9
GR    1668.9   10241.5    1668.9   10262.1    1669.8   10287.8    1669.7   10304.8    1669.0   10322.4
GR    1669.5   10330.5    1669.7   10348.7    1670.6   10360.8    1670.1   10377.8    1668.0   10382.9
GR    1668.0   10387.1    1669.2   10392.2    1669.5   10400.3    1670.1   10413.1    1670.3   10430.5
```

A MINOR FLOW BREAKOUT OCCURS AT THE LEFT END OF SECTION 1.557 (SECTION 0.867, WASH A SOUTH). THE ESTIMATED BREAKOUT FLOW IS SMALL AND THE FLOW IN WASH A IS NOT REDUCED. (SEE SPECIAL PROBLEM NO. 6A)

```
NC      .08       .08      .035       0.1       0.3
NH       11       .08    9900.8       .04    9906.8       .08    9944.9       .04    9968.1       .08
NH    9997.0      .035   10010.0       .08   10086.7      .035   10104.0       .08   10186.7       .04
NH    10212.      .08    10334.1
```

X1	1.557	41	9997.0	10104.0	400	490	449			
GR	1680.5	9827.0	1680.4	9852.9	1679.9	9866.7	1679.7	9873.1	1680.5	9884.2
GR	1680.4	9900.8	1678.7	9902.1	1680.5	9906.8	1680.5	9923.8	1680.2	9944.9
GR	1679.1	9959.4	1679.4	9968.1	1679.7	9987.6	1679.9	9997.0	1678.9	10000.0
GR	1679.0	10004.0	1679.1	10007.2	1679.8	10010.0	1679.5	10025.4	1679.3	10044.0
GR	1679.7	10059.3	1679.5	10064.5	1679.7	10074.1	1679.8	10086.7	1679.7	10095.2
GR	1680.2	10104.0	1680.0	10126.8	1680.1	10143.9	1679.7	10158.7	1680.1	10173.6
GR	1679.9	10186.7	1678.1	10190.1	1679.1	10198.5	1680.3	10212.0	1680.7	10231.1
GR	1679.1	10245.3	1680.0	10263.1	1680.7	10284.3	1681.1	10301.7	1681.7	10316.4
GR	1681.9	10334.1								
NC	.08	.07	.035	0.1	0.3					
NH	5	.08	9976.1	.035	10024.9	.07	10290.3	.04	10306.4	.07
NH	10403.									
X1	1.629	42	9976.1	10024.9	415	330	380			
GR	1691.0	9776.0	1691.0	9795.8	1689.7	9815.3	1689.5	9825.7	1690.1	9853.6
GR	1689.5	9883.0	1689.8	9905.9	1689.3	9922.9	1688.3	9941.1	1689.2	9957.0
GR	1689.4	9976.1	1688.8	9986.4	1688.4	9998.7	1688.6	10000.0	1689.1	10008.6
GR	1688.7	10017.0	1688.9	10024.9	1688.2	10033.7	1688.9	10042.8	1688.9	10043.0
GR	1688.7	10060.8	1687.6	10074.0	1688.5	10080.8	1688.2	10098.0	1687.7	10106.1
GR	1689.0	10119.5	1689.1	10143.2	1688.6	10158.1	1688.8	10172.5	1688.7	10186.5
GR	1688.6	10193.3	1687.1	10201.7	1688.4	10216.4	1688.8	10238.5	1689.3	10255.7
GR	1688.9	10272.1	1688.3	10290.3	1686.3	10301.0	1688.6	10306.4	1688.6	10329.5
GR	1689.6	10367.5	1689.5	10403.0						
NC	.07	.07	.035	0.1	0.3					
NH	5	.07	9793.3	.04	9851.5	.07	9984.3	.035	10032.8	.07
NH	10115.									
X1	1.733	23	9984.3	10032.8	490	510	549			
GR	1702.9	9757.59	1702.9	9757.6	1702.3	9775.1	1701.5	9793.3	1701.4	9803.8
GR	1701.0	9810.5	1700.8	9821.9	1701.1	9835.8	1701.7	9851.5	1701.9	9871.2
GR	1701.7	9894.3	1702.2	9927.6	1702.4	9945.8	1703.1	9969.2	1702.9	9984.3
GR	1702.3	9995.3	1701.6	10000.0	1702.3	10016.3	1702.7	10032.8	1703.8	10056.4
GR	1704.5	10073.0	1704.3	10092.7	1703.6	10115.0				

A MINOR FLOW BREAKOUT OCCURES AT THE LEFT END OF SECTION 1.806. THE ESTIMATED BREAKOUT FLOW IS SMALL AND THE FLOW IN WASH A IS NOT REDUCED. (SEE SPECIAL PROBLEM NO. 4A)

NH	7	.07	9792.9	.04	9818.3	.07	9915.1	.04	9941.6	.07
NH	9977.5	.035	10043.9	.07	10088.2					
X1	1.806	39	9977.5	10043.9	385	370	385			
GR	1712.4	9726.18	1712.4	9726.19	1712.4	9726.2	1712.2	9739.4	1711.9	9750.6
GR	1711.5	9765.2	1711.7	9775.0	1712.1	9784.7	1712.1	9792.9	1711.6	9797.0
GR	1710.9	9801.7	1710.6	9804.9	1710.6	9809.6	1711.1	9813.4	1712.4	9818.3
GR	1712.3	9835.0	1712.0	9860.5	1712.2	9881.2	1712.1	9897.9	1711.8	9915.1
GR	1711.5	9927.1	1711.7	9933.2	1711.1	9933.9	1711.8	9941.6	1712.6	9953.3
GR	1712.6	9966.9	1712.5	9977.5	1712.0	9980.8	1710.8	9984.5	1710.8	9992.7
GR	1710.9	9999.9	1711.1	10000.0	1711.2	10007.9	1711.1	10017.5	1711.8	10029.3
GR	1712.6	10043.9	1713.0	10058.8	1713.0	10076.0	1713.1	10088.2		

NH	7	.07	9644.0	.04	9675.2	.07	9860.0	.04	9886.7	.07
NH	9958.2	.035	10070.3	.07	10140.5					
X1	1.887	39	9958.2	10070.3	415	400	428			
GR	1723.7	9561.7	1723.5	9588.3	1723.2	9613.8	1722.6	9644.0	1719.8	9651.4
GR	1720.1	9657.0	1721.2	9661.7	1720.1	9668.3	1721.4	9675.2	1721.5	9689.8
GR	1721.4	9692.3	1721.4	9709.0	1722.1	9729.6	1722.3	9755.5	1722.4	9785.4
GR	1722.3	9810.3	1721.9	9832.1	1721.9	9846.2	1722.0	9860.0	1721.8	9872.4
GR	1721.0	9876.3	1721.2	9882.6	1722.2	9886.7	1722.2	9905.6	1722.1	9936.4
GR	1722.6	9958.2	1721.7	9974.6	1721.1	9988.8	1721.2	10000.0	1721.5	10017.5
GR	1721.7	10039.0	1721.7	10060.4	1722.0	10070.3	1721.5	10082.8	1722.4	10091.5
GR	1721.8	10103.3	1721.7	10116.2	1722.6	10127.2	1722.9	10140.5		
NH	6	.07	9874.2	.04	9923.5	.07	9988.0	.035	10018.5	.07
NH	10249.	.04	10348.6							
X1	1.983	42	9988.0	10018.5	525	505	507			
GR	1737.3	9676.1	1738.1	9695.6	1737.1	9713.9	1737.9	9725.1	1738.0	9741.3
GR	1736.5	9761.2	1735.9	9786.6	1734.9	9807.5	1734.0	9818.6	1733.3	9828.2
GR	1734.7	9837.9	1733.9	9850.9	1733.8	9862.6	1734.1	9874.2	1733.9	9883.6
GR	1731.8	9889.8	1733.5	9895.3	1734.5	9910.0	1735.2	9923.5	1735.0	9944.4
GR	1734.7	9946.0	1734.4	9963.1	1733.5	9974.9	1734.2	9988.0	1732.7	9996.9
GR	1732.7	10000.0	1733.1	10013.4	1734.1	10018.5	1734.7	10031.5	1733.5	10041.3
GR	1734.2	10045.0	1734.7	10074.2	1735.6	10112.9	1735.5	10154.9	1735.9	10184.5
GR	1736.1	10217.0	1735.5	10227.4	1736.7	10249.0	1736.2	10280.8	1736.5	10306.2
GR	1736.3	10327.7	1736.6	10348.6						

A SPLIT FLOW CONDITION OCCURS JUST DOWNSTREAM OF THIS SECTION. FLOW EXITS INTO A SMALL WASH WHICH ENDS IN WASH A CHANNEL JUST DOWNSTREAM. RATING CURVES FOR THIS SECTION AND THE SMALL WASH WERE DEVELOPEDED AND ADDED TOGETHER TO DETERMINE THAT APPROXIMATELY 60 CFS LEAVES AT THIS LOCATION. DUE TO THE DISCHARGE BEING LESS THAN 6 PERCENT OF THE TOTAL FLOW THERE WAS NO FLOW REDUCTION IN WASH A DISCHARGE. (SEE SPECIAL PROBLEM NO. 3A)

NC	.08	.07	.035	0.1	0.3					
X1	2.105	25	9989.7	10060.7	675	655	644			
GR	1751.0	9826.6	1750.9	9849.4	1749.6	9894.0	1748.9	9914.6	1749.0	9944.2
GR	1749.2	9971.3	1748.9	9989.7	1747.0	10000.0	1748.9	10010.4	1749.2	10024.4
GR	1748.9	10030.7	1747.7	10034.1	1748.3	10041.7	1749.1	10060.7	1748.5	10078.6
GR	1748.2	10090.7	1748.8	10097.9	1749.3	10106.8	1748.7	10135.7	1749.2	10159.0
GR	1749.0	10175.1	1749.2	10190.0	1748.4	10195.3	1749.5	10209.2	1750.2	10224.0

SECTION 2.181 FLOODED AREA IS SHOWN AS SPLIT FLOODED AREA, WITHOUT THE FLOW OR PROFILE BEING CALCULATED FOR THE SPLIT FLOW. (SEE SPECIAL PROBLEM NO. 2A)

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NH        5       .08    9815.9       .04    9840.0       .08    9967.8      .035   10016.8       .07
NH    10139.
X1     2.181        39    9967.8   10016.8       390       370       401
GR    1760.8    9702.6    1760.8    9723.4    1761.0    9741.6    1761.3    9762.5    1761.4    9787.6
GR    1761.0    9815.9    1760.1    9821.8    1759.9    9836.1    1760.9    9840.0    1761.0    9855.3
GR    1760.8    9864.9    1759.3    9871.0    1760.1    9878.6    1759.9    9880.5    1759.8    9888.1
GR    1758.6    9892.5    1759.6    9897.4    1759.4    9914.7    1759.8    9932.3    1759.8    9941.7
GR    1758.8    9944.6    1758.9    9953.8    1758.9    9967.8    1757.8    9973.5    1757.8    9981.3
GR    1758.5    9990.7    1757.5    9997.2    1757.3   10000.0    1757.3   10012.0    1758.8   10016.8
GR    1758.8   10030.3    1758.7   10053.2    1758.9   10064.8    1758.6   10086.2    1759.1   10100.2
GR    1759.6   10108.2    1760.2   10112.6    1760.5   10135.0    1760.6   10139.0       0.0       0.0

NH        5       .08    9989.4      .035   10056.7       .07   10116.9       .04   10139.3       .07
NH    10250.
X1     2.297        25    9989.4   10056.7       625       575       612
GR    1774.7   9924.09    1774.7    9924.1    1774.0    9941.4    1773.2    9961.6    1773.7    9979.3
GR    1773.2    9983.0    1773.3    9989.4    1772.4    9994.2    1772.5   10000.0    1772.3   10010.2
GR    1772.8   10016.7    1772.8   10037.5    1773.5   10056.7    1774.2   10081.6    1773.8   10104.5
GR    1773.9   10116.9    1771.6   10121.2    1772.0   10130.7    1773.8   10139.3    1773.8   10150.4
GR    1773.7   10173.1    1773.7   10193.1    1774.0   10215.8    1773.9   10234.7    1774.5   10250.0

NH        5       .07    9990.9      .035   10017.4       .07   10061.2       .04   10077.4       .07
NH    10319.
X1     2.403        39    9990.9   10017.4       530       550       560
GR    1788.4   9832.57    1788.4   9832.58    1788.4   9832.59    1788.4    9832.6    1788.0    9849.9
GR    1787.9    9872.8    1787.6    9883.9    1786.6    9886.4    1787.5    9891.2    1787.5    9909.2
GR    1786.5    9928.8    1786.1    9934.4    1787.0    9948.5    1787.4    9954.6    1788.0    9977.2
GR    1787.6    9990.9    1786.8   10000.0    1786.0   10005.1    1785.9   10010.1    1787.4   10017.4
GR    1787.8   10035.3    1787.5   10061.2    1786.3   10068.9    1787.7   10077.4    1787.8   10085.6
GR    1786.1   10094.3    1787.8   10103.2    1787.6   10122.6    1787.6   10147.5    1788.2   10173.9
GR    1788.6   10176.7    1787.5   10196.6    1788.5   10213.0    1789.3   10229.3    1789.2   10246.8
GR    1788.4   10265.6    1788.6   10285.7    1789.1   10304.6    1789.8   10319.0       0.0       0.0
```

A FLOW BREAKOUT OCCURS AT THIS SECTION. FLOW EXITS VIA THE RIGHT SIDE. RATING CURVES FOR THIS SECTION AND THE WATERSHEDDIVIDE WERE DEVELOPED AND ADDED TOGETHER TO DETERMINE THAT APPROXIMATELY 210 CFS LEAVES WASH A. 150 CFS LEAVES BELOW THE SECTION AND 60 CFS LEAVES AT THE SECTION. THEREFORE THE DISCHARGE FOR SECTION 2.494 HAS BEEN REDUCED FROM 1310 CFS TO 1250 CFS AND THE DISCHARGE FOR THE NEXT DOWNSTREAM SECTION 2.403 HAS BEEN REDUCED FROM 1310 CFS TO 1100 CFS. (SEE SPECIAL PROBLEM NO. 1A)

```
QT        1      1250
NC      .08       .06      .035       0.1       0.3
X1    2.494        21    9976.7   10019.1       445       425       480
GR   1801.5   9902.67    1801.5   9902.68    1801.5   9902.69    1801.5    9902.7    1801.0    9921.9
GR   1799.7    9944.1    1800.4    9961.0    1799.5    9976.7    1798.6    9991.6    1798.6   10000.0
GR   1798.8   10008.1    1799.8   10019.1    1799.8   10036.1    1800.1   10048.0    1799.5   10062.1
GR   1799.0   10066.8    1797.5   10071.5    1799.0   10079.7    1799.6   10096.8    1800.0   10122.6
GR   1800.2   10130.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
```



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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1
0

CCHV=     .100 CEHV=     .300
*SECNO  .000
3720 CRITICAL DEPTH ASSUMED
     .000      4.18   1509.28   1509.28   1507.00   1510.68      1.40       .00       .00   1509.60
  1080.0        .0    1056.9      23.1        .0     110.1      10.6        .0        .0   1509.00
     .00       .00      9.60      2.17      .000      .035      .080      .000   1505.10   9988.44
 .013203        0.        0.        0.         0        16         0       .00     47.17  10035.60

FLOW DISTRIBUTION FOR SECNO=       .00          CWSEL=   1509.28

STA=    9988.   10026.   10030.   10036.
  PER Q=     97.9      1.1      1.0
   AREA=    110.1      5.2      5.4
    VEL=      9.6      2.3      2.1
  DEPTH=      2.9      1.2      1.0

CCHV=     .100 CEHV=     .300
*SECNO  .031
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     .031      3.11   1513.51   1513.51       .00   1514.73      1.22      1.91       .02   1521.40
  1080.0        .0    1080.0        .0        .0     122.0        .0        .5        .2   1522.90
     .01       .00      8.85       .00      .000      .030      .000      .000   1510.40   9982.64
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   .010307      160.      164.      180.        20        15         0       .00     50.63  10033.27

FLOW DISTRIBUTION FOR SECNO=       .03          CWSEL=   1513.51

STA=    9983.   10041.
  PER Q=    100.0
   AREA=    122.0
    VEL=      8.9
  DEPTH=      2.4

*SECNO  .094
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .094       2.40   1520.60   1520.60        .00   1521.66       1.07       3.53        .01   1526.30
    1080.0        .0    1080.0        .0         .0     130.3         .0        1.4         .6   1528.80
      .02        .00      8.29       .00       .000      .030       .000       .000    1518.20   9964.68
   .010904       340.      333.      290.        20        15          0        .00      61.91  10026.59

FLOW DISTRIBUTION FOR SECNO=       .09          CWSEL=   1520.60

STA=    9965.   10029.
  PER Q=    100.0
   AREA=    130.3
    VEL=      8.3
  DEPTH=      2.1

CCHV=     .100 CEHV=     .300
*SECNO  .181
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .181       3.33   1533.03   1533.03        .00   1534.16       1.13       4.86        .02   1539.10
    1080.0        .0    1080.0        .0         .0     126.4         .0        2.8        1.2   1540.10
      .03        .00      8.54       .00       .000      .030       .000       .000    1529.70   9952.80
   .010307       440.      459.      450.        20        11          0        .00      55.96  10008.76

FLOW DISTRIBUTION FOR SECNO=       .18          CWSEL=   1533.03

STA=    9953.   10021.
  PER Q=    100.0
   AREA=    126.4
    VEL=      8.5
  DEPTH=      2.3

*SECNO  .241
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .241       2.76   1538.96   1538.96        .00   1539.94        .98       3.36        .02   1543.40
    1080.0        .0    1080.0        .0         .0     136.1         .0        3.7        1.7   1541.10
      .04        .00      7.94       .00       .000      .030       .000       .000    1536.20   9960.94
   .010921       305.      317.      315.        20        15          0        .00      70.97  10031.90

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=       .24          CWSEL=   1538.96

STA=    9961.   10050.
  PER Q=    100.0
   AREA=    136.1
    VEL=      7.9
  DEPTH=      1.9

*SECNO  .347

3265 DIVIDED FLOW

3280 CROSS SECTION       .35 EXTENDED       .01 FEET

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .347       4.81   1552.61   1552.61        .00   1554.27       1.66       6.01        .20   1553.20
    1080.0        .0    1080.0        .0         .0     104.4         .0        5.3        2.4   1553.10
      .06        .00     10.34       .00       .000      .030       .000       .000    1547.80   9981.40
   .010565       505.      560.      545.        20        15          0        .00      33.70  10074.70
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FLOW DISTRIBUTION FOR SECNO=       .35          CWSEL=   1552.61

STA=    9981.   10016.
  PER Q=    100.0
   AREA=    104.4
    VEL=     10.3
  DEPTH=      3.1

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO  .453

3265 DIVIDED FLOW
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .453      5.52   1564.32   1564.32       .00   1565.03       .71      3.42       .10   1563.10
    1080.0      23.5     849.2     207.3      19.3     111.9     150.3       7.7       4.5   1563.60
       .08      1.22      7.59      1.38      .070      .030      .060      .000   1558.80   9958.60
   .004008      535.      560.      525.        20         8         0       .00    319.47  10391.44

FLOW DISTRIBUTION FOR SECNO=       .45          CWSEL=   1564.32

STA=    9959.    9990.   10017.   10075.   10255.   10310.   10316.   10340.   10391.
  PER Q=      2.2     78.6      4.2      3.2      3.9      4.2      3.0       .6
   AREA=     19.3    111.9     38.2     34.6     31.6     12.2     22.8     10.9
    VEL=      1.2      7.6      1.2      1.0      1.3      3.7      1.4       .6
  DEPTH=       .6      4.1       .7       .2       .6      2.1       .9       .2

1490 NH CARD USED
*SECNO  .550
3280 CROSS SECTION       .55 EXTENDED       .23 FEET

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .550      2.63   1572.53   1572.53       .00   1572.97       .44      3.02       .03   1572.10
    1080.0      21.3     471.7     587.1      18.6      63.2     213.1      10.9       8.0   1572.20
       .11      1.14      7.46      2.75      .070      .030      .057      .000   1569.90   9920.11
   .010553      495.      512.      460.        20        13         0       .00    316.89  10237.00

FLOW DISTRIBUTION FOR SECNO=       .55          CWSEL=   1572.53
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

STA=    9920.    9977.   10012.   10053.   10072.   10085.   10088.   10092.   10098.   10111.   10138.   10162.   10189.
  PER Q=      2.0     43.7      4.5      3.3      8.3      3.6      3.7      5.7      4.0      7.2      3.2      4.3
   AREA=     18.6     63.2     28.1     15.5     18.0      6.8      6.7     11.0     16.6     31.8     18.9     22.9
    VEL=      1.1      7.5      1.7      2.3      4.9      5.7      6.0      5.6      2.6      2.4      1.8      2.0
  DEPTH=       .3      1.8       .7       .8      1.5      1.8      2.0      1.8      1.3      1.2       .8       .9

STA=   10189.   10206.   10237.
  PER Q=      4.1      2.6
   AREA=     19.1     17.7
    VEL=      2.3      1.6
  DEPTH=      1.1       .6

CCHV=     .100 CEHV=     .300
*SECNO  .658
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .658      3.74   1583.04   1583.04       .00   1583.73       .69      6.10       .07   1582.30
    1090.0      98.8     747.0     244.2      48.0      94.3     110.6      14.4      11.3   1581.80
       .14      2.06      7.92      2.21      .080      .040      .080      .000   1579.30   9934.27
   .010848      530.      570.      575.        10        11         0       .00    195.22  10129.49

FLOW DISTRIBUTION FOR SECNO=       .66          CWSEL=   1583.04

STA=    9934.    9963.    9981.   10012.   10022.   10049.   10065.   10125.   10129.
  PER Q=      5.0      4.0     68.5      3.4     12.1      3.7      3.2       .1
   AREA=     27.2     20.8     94.3     14.6     47.0     18.6     29.0      1.4
    VEL=      2.0      2.1      7.9      2.5      2.8      2.2      1.2       .9
  DEPTH=      1.0      1.1      3.0      1.5      1.7      1.2       .5       .3

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
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*SECNO  .700

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     .700       3.00   1586.80   1586.80       .00   1587.35       .55      2.61       .01   1587.40
   1090.0         .0     862.7     227.3        .0     130.7     105.9      15.6      12.2   1587.60
     .15        .00      6.60      2.15      .000      .035      .080      .000   1583.80   9979.96
  .013842       195.      222.      190.        10        16         0       .00    207.50  10210.50
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=       .70          CWSEL=   1586.80

STA=    9980.   10035.   10084.   10125.   10144.   10166.   10187.   10210.
  PER Q=     43.5     35.7      3.7      4.2      4.7      5.3      2.9
   AREA=     74.3     56.4     21.3     20.2     22.9     24.1     17.4
    VEL=      6.4      6.9      1.9      2.3      2.3      2.4      1.8
  DEPTH=      1.5      1.7       .5      1.1      1.1      1.2       .7

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO  .723

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.95

     .723       2.32   1587.92       .00       .00   1588.14       .21       .75       .03   1588.40
   1090.0         .0    1086.7       3.3        .0     292.1       6.2      16.3      12.8   1587.30
     .16        .00      3.72       .53      .000      .031      .075      .000   1585.60   9989.79
  .003658       125.      121.       90.         3         0         0       .00    224.27  10253.32

FLOW DISTRIBUTION FOR SECNO=       .72          CWSEL=   1587.92

STA=    9990.   10018.   10052.   10066.   10198.   10253.
  PER Q=      4.4      1.7      3.1     90.5       .3
   AREA=     20.6     20.5     22.6    228.4      6.2
    VEL=      2.3       .9      1.5      4.3       .5
  DEPTH=      1.1       .6      1.6      1.7       .1

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO  .820

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     .820       2.08   1597.88   1597.88       .00   1598.29       .41      2.95       .06   1597.30
   600.0       150.5     298.5     151.0      43.9      45.9      48.1      18.8      15.2   1597.20
     .18       3.43      6.51      3.14      .048      .040      .070      .000   1595.80   9876.88
  .020531       485.      512.      520.        20        15         0       .00    187.61  10066.99
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=       .82          CWSEL=   1597.88

STA=    9877.    9896.    9903.    9910.    9979.   10013.   10025.   10044.   10049.   10062.   10067.
  PER Q=      4.8     10.4      3.7      6.2     49.8      3.3      7.7      5.9      8.2       .0
   AREA=      7.5      9.7      5.1     21.5     45.9      8.4     16.3      8.0     14.9       .5
    VEL=      3.8      6.4      4.3      1.7      6.5      2.4      2.8      4.4      3.3       .6
  DEPTH=       .4      1.3       .7       .3      1.4       .7       .9      1.8      1.1       .1

1490 NH CARD USED
*SECNO  .902

3265 DIVIDED FLOW

3280 CROSS SECTION        .90 EXTENDED        .21 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     .902       2.81   1606.61   1606.61       .00   1606.89       .28      7.26       .01   1606.60
   600.0       513.0      59.6      27.4     116.3      17.4      23.2      20.3      17.5   1606.60
     .21       4.41      3.43      1.18      .042      .035      .070      .000   1603.80   9736.90
  .014514       420.      433.      420.         4        11         0       .00    301.05  10157.34

FLOW DISTRIBUTION FOR SECNO=       .90          CWSEL=   1606.61
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STA=    9737.    9765.    9777.    9785.    9810.    9820.    9907.    9914.    9962.    9984.   10016.   10078.   10157.
  PER Q=     6.9     27.6     15.8     11.2      3.8      9.2      7.6      3.4       .1      9.9      3.7       .9
   AREA=    14.3     23.7     14.8     18.1      6.8     12.3      9.1     15.8      1.4     17.4     17.8      5.4
    VEL=     2.9      7.0      6.4      3.7      3.4      4.5      5.0      1.3       .4      3.4      1.2      1.0
  DEPTH=      .5      2.0      1.8       .7       .7       .1      1.2       .3       .1       .6       .3       .1

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO  .990

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     .990      1.72   1616.02   1616.02       .00   1616.34       .32      7.98       .01   1616.00
   600.0     253.8     345.1       1.1      81.8      64.6       1.5      21.9      20.6   1615.80
     .24      3.10      5.34       .72      .049      .035      .070      .000   1614.30   9754.68
 .021255      455.      465.      455.         5        14         0       .00    277.98  10080.45
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=      .99          CWSEL=   1616.02

STA=    9755.    9770.    9779.    9790.    9795.    9802.    9832.    9873.    9901.    9986.   10067.   10080.
  PER Q=     9.0      4.8      3.4      7.4      5.2      4.5      3.7      3.5       .8     57.5       .2
   AREA=    11.0      6.7      5.8      6.9      6.2     13.7     14.2     12.0      5.3     64.6      1.5
    VEL=     4.9      4.3      3.5      6.5      5.0      2.0      1.5      1.7       .9      5.3       .7
  DEPTH=      .7       .7       .5      1.3       .9       .5       .3       .4       .1       .8       .1

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.117

3265 DIVIDED FLOW

    1.117      3.30   1628.80   1628.79       .00   1629.20       .40     12.84       .02   1630.40
    600.0       .0     101.8     498.2        .0      21.5      97.3      23.8      23.9   1630.30
      .28       .00      4.74      5.12      .000      .035      .044      .000   1625.50   9974.64
 .018946      655.      671.      605.         8        17         0       .00    174.56  10286.19

FLOW DISTRIBUTION FOR SECNO=     1.12          CWSEL=   1628.80

STA=    9975.   10009.   10118.   10127.   10135.   10167.   10234.   10241.   10286.
  PER Q=    17.0      4.5     27.1     20.5      3.6     14.6     10.8      2.0
   AREA=    21.5     12.7     19.8     15.6     12.8     16.0     10.2     10.2
    VEL=     4.7      2.1      8.2      7.8      1.7      5.5      6.4      1.2
  DEPTH=      .7       .1      2.1      2.0       .4       .2      1.5       .2

1490 NH CARD USED
*SECNO 1.208

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    1.208      2.38   1638.58   1638.58       .00   1638.89       .31      7.48       .01   1639.70
    545.0       .0     166.1     378.9        .0      27.4     106.0      25.1      25.9   1638.90
      .31       .00      6.06      3.58      .000      .035      .045      .000   1636.20   9987.94
 .014797      475.      480.      435.         5        14         0       .00    215.11  10474.37
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=     1.21          CWSEL=   1638.58

STA=    9988.   10010.   10105.   10113.   10209.   10320.   10326.   10409.   10412.   10417.   10431.   10436.   10439.
  PER Q=    30.5      4.3     12.0     12.7      6.0      3.1      3.8      4.9      8.1      5.5      4.9      3.2
   AREA=    27.4      5.2     11.9     19.5     14.6      6.4     12.7      4.7      7.3      9.1      5.3      3.9
    VEL=     6.1      4.5      5.5      3.6      2.2      2.7      1.6      5.6      6.0      3.3      5.1      4.5
  DEPTH=     1.3       .1      1.4       .2       .1      1.1       .2      1.6      1.6       .6      1.2      1.1

STA=   10439.   10474.
  PER Q=      .9
   AREA=     5.5
    VEL=      .8
  DEPTH=      .2

CCHV=     .100 CEHV=     .300
*SECNO 1.306

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
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     1.306      1.68   1650.18   1650.18       .00   1650.49       .31     11.33       .00   1650.30
     545.0      15.8     150.0     379.1       4.9      22.0     121.5      26.6      28.1   1650.00
       .34      3.25      6.82      3.12      .080      .040      .080      .000   1648.50   9954.46
   .046945      500.      517.      445.        10        16         0       .00    224.66  10209.90

FLOW DISTRIBUTION FOR SECNO=      1.31          CWSEL=   1650.18

STA=    9954.    9960.   10019.   10032.   10046.   10061.   10098.   10112.   10126.   10149.   10167.   10180.   10202.
  PER Q=      2.9     27.5      3.3      8.6      4.9      9.4      8.5      3.5      9.0     10.6      5.0      5.3
   AREA=      4.9     22.0      6.9     12.7      9.0     18.3     12.6      7.3     15.7     15.6      8.8     11.2
    VEL=      3.3      6.8      2.6      3.7      2.9      2.8      3.7      2.6      3.1      3.7      3.1      2.6
  DEPTH=       .8       .8       .5       .9       .6       .5       .9       .5       .7       .9       .7       .5

STA=   10202.   10210.
  PER Q=      1.5
   AREA=      3.4
    VEL=      2.3
  DEPTH=       .4
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

CCHV=     .100 CEHV=     .300
*SECNO 1.367

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.79

     1.367      1.90   1658.40   1658.37       .00   1658.83       .43      8.31       .04   1657.30
     545.0      49.1     472.3      23.6      31.3      83.8      17.0      27.7      29.7   1657.70
       .36      1.57      5.64      1.39      .080      .040      .080      .000   1656.50   9923.48
   .014700      295.      322.      385.        12         8         0       .00    165.30  10088.78

FLOW DISTRIBUTION FOR SECNO=      1.37          CWSEL=   1658.40

STA=    9923.    9949.    9965.    9978.    9991.   10051.   10082.   10089.
  PER Q=      1.1      1.1      1.8      5.0     86.7      4.2       .1
   AREA=      6.5      5.5      6.8     12.4     83.8     16.0      1.0
    VEL=       .9      1.1      1.4      2.2      5.6      1.4       .6
  DEPTH=       .3       .4       .5      1.0      1.4       .5       .2

1490 NH CARD USED
*SECNO 1.472

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.60

     1.472      2.30   1669.80   1669.78       .00   1670.15       .35     11.31       .01   1669.90
    1100.0        .0     746.3     353.7        .0     139.9     117.6      30.4      33.4   1668.40
       .39       .00      5.34      3.01      .000      .035      .066      .000   1667.50   9997.96
   .023304      545.      554.      655.        11        11         0       .00    372.02  10406.70

FLOW DISTRIBUTION FOR SECNO=      1.47          CWSEL=   1669.80

STA=    9998.   10035.   10045.   10063.   10155.   10189.   10210.   10239.   10262.   10331.   10387.   10392.   10407.
  PER Q=      3.8       .1      4.6     10.5     48.9      6.3      5.2      5.0      3.7      7.9      3.5       .6
   AREA=     11.7      1.5     11.9     56.5     58.3     22.9     23.2     20.7     24.8     15.2      6.1      4.6
    VEL=      3.6       .8      4.2      2.0      9.2      3.0      2.4      2.6      1.7      5.7      6.3      1.5
  DEPTH=       .4       .2       .7       .6      1.7      1.1       .8       .9       .4       .3      1.2       .3
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.557

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3720 CRITICAL DEPTH ASSUMED
     1.557      2.30   1680.40   1680.40       .00   1680.74       .33     13.78       .00   1679.90
    1100.0     273.1     419.2     407.7      60.3      89.4      87.9      33.0      37.3   1680.20
       .42      4.53      4.69      4.64      .054      .057      .054      .000   1678.10   9852.36
   .040501      400.      449.      490.        20         5         0       .00    364.29  10275.28

FLOW DISTRIBUTION FOR SECNO=      1.56          CWSEL=   1680.40

STA=    9852.    9907.    9959.    9968.    9988.    9997.   10010.   10087.   10104.   10159.   10190.   10199.   10212.
  PER Q=      4.7      6.2      7.5      5.1      1.4     13.8     19.3      5.0      3.7      6.3     15.2      5.1
   AREA=     15.6     12.3     10.0     16.6      5.7     15.8     64.1      9.5     20.3     17.5     15.1      9.5
    VEL=      3.3      5.5      8.2      3.4      2.7      9.6      3.3      5.7      2.0      4.0     11.0      5.9
  DEPTH=       .3       .2      1.2       .9       .6      1.2       .8       .6       .4       .6      1.8       .7
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STA=   10212.   10263.   10275.
  PER Q=      6.6       .3
   AREA=     22.9      2.4
    VEL=      3.1      1.3
  DEPTH=       .4       .2

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.629

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.55

     1.629      3.12   1689.42       .00       .00   1689.59       .17      8.84       .02   1689.40
    1100.0      42.3     114.9     942.8      25.1      29.3     290.9      35.3      40.6   1688.90
       .45      1.68      3.92      3.24      .080      .035      .062      .000   1686.30   9918.44
   .016889      415.      380.      330.         7         0         0       .00    442.64  10361.08


FLOW DISTRIBUTION FOR SECNO=      1.63          CWSEL=   1689.42
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


STA=    9918.    9957.    9976.   10025.   10043.   10074.   10098.   10106.   10120.   10173.   10202.   10216.   10239.
  PER Q=      3.7       .1     10.4      3.6      7.1      7.8      3.9      3.8      4.8      7.5      8.7      4.1
   AREA=     22.6      2.5     29.3     15.8     28.3     28.0     12.0     14.5     28.2     28.1     24.7     18.4
    VEL=      1.8       .6      3.9      2.5      2.8      3.1      3.6      2.9      1.9      2.9      3.9      2.4
  DEPTH=       .6       .1       .6       .9       .9      1.2      1.5      1.1       .5      1.0      1.7       .8

STA=   10239.   10290.   10301.   10306.   10330.   10361.
  PER Q=      4.9     16.4      7.0      4.3      1.8
   AREA=     27.1     22.8     10.7     19.2     13.1
    VEL=      2.0      7.9      7.2      2.4      1.5
  DEPTH=       .5      2.1      2.0       .8       .4

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.733

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     1.733      1.94   1702.74   1702.74       .00   1703.18       .44     10.33       .08   1702.90
    1100.0    1006.0      94.0        .0     185.5      22.4        .0      38.5      44.6   1702.70
       .47      5.42      4.20       .03      .048      .035      .070      .000   1700.80   9762.24
   .025384      490.      549.      510.         3        14         0       .00    241.41  10033.68


FLOW DISTRIBUTION FOR SECNO=      1.73          CWSEL=   1702.74

STA=    9762.    9793.    9804.    9811.    9822.    9836.    9852.    9871.    9894.    9928.    9957.   10033.
  PER Q=      4.5      8.6      7.4     17.0     19.7     13.8      5.5      6.4      6.9      1.6      8.5
   AREA=     18.1     13.6     10.3     21.0     24.9     21.1     18.5     21.7     26.3     10.0     22.4
    VEL=      2.7      7.0      7.9      8.9      8.7      7.2      3.2      3.2      2.9      1.8      4.2
  DEPTH=       .6      1.3      1.5      1.8      1.8      1.3       .9       .9       .8       .3       .5

1490 NH CARD USED
*SECNO 1.806

3265 DIVIDED FLOW

3280 CROSS SECTION      1.81 EXTENDED       .20 FEET
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     1.806      2.00   1712.60   1712.60       .00   1713.03       .44      8.63       .00   1712.50
    1100.0     585.9     514.1        .0     155.4      77.6        .0      40.5      47.0   1712.60
       .50      3.77      6.63       .00      .050      .035      .000      .000   1710.60   9726.18
   .019925      385.      385.      370.         5         8         0       .00    303.44  10043.81


FLOW DISTRIBUTION FOR SECNO=      1.81          CWSEL=   1712.60

STA=    9726.    9765.    9785.    9802.    9805.    9810.    9813.    9861.    9915.    9927.    9934.    9942.    9978.
  PER Q=      4.9      4.1      5.5      4.2      7.1      4.6      4.0      5.2      5.2      3.3      4.6       .7
   AREA=     23.1     16.5     13.4      5.9      9.4      6.6     19.6     28.8     11.3      6.9      8.8      5.1
    VEL=      2.3      2.7      4.5      7.9      8.3      7.6      2.2      2.0      5.0      5.2      5.7      1.5
  DEPTH=       .6       .8       .8      1.8      2.0      1.7       .4       .5       .9      1.0      1.1       .1

STA=    9978.   10044.
  PER Q=     46.7
   AREA=     77.6
    VEL=      6.6
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 DEPTH=      1.2

1490 NH CARD USED
*SECNO 1.887

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    1.887      2.55   1722.35   1722.35       .00   1722.67       .32      8.27       .01   1722.60
   1100.0     638.6     416.1      45.3     148.1      83.3      24.3      42.8      50.5   1722.00
      .52      4.31      4.99      1.86      .047      .035      .070      .000   1719.80   9644.66
  .019454      415.      428.      400.        11        11         0       .00    435.45  10124.15

FLOW DISTRIBUTION FOR SECNO=      1.89          CWSEL=   1722.35
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

STA=    9645.    9651.    9657.    9662.    9668.    9675.    9690.    9709.    9832.    9872.    9883.    9947.   10070.
  PER Q=     4.6     11.3      5.3      7.5      7.0      3.3      4.7      3.3      3.4      6.0      1.8     37.8
   AREA=     8.6     13.4      8.0     11.2     11.0     13.1     18.1     22.4     17.5     11.6     13.1     83.3
    VEL=     5.8      9.3      7.3      7.3      7.0      2.8      2.8      1.6      2.1      5.7      1.5      5.0
  DEPTH=     1.3      2.4      1.7      1.7      1.6       .9       .9       .2       .4      1.1       .2       .8

STA=   10070.   10116.   10124.
  PER Q=     3.8      .3
   AREA=    21.7     2.6
    VEL=     1.9     1.4
  DEPTH=      .5      .3

1490 NH CARD USED
*SECNO 1.983

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    1.983      3.21   1735.01   1735.01       .00   1735.51       .51      8.89       .06   1734.20
   1100.0     577.1     443.9      79.0     152.6      56.4      39.3      45.8      54.7   1734.10
      .55      3.78      7.87      2.01      .054      .035      .070      .000   1731.80   9805.29
  .015309      525.      507.      505.        19        11         0       .00    257.99  10087.34

FLOW DISTRIBUTION FOR SECNO=      1.98          CWSEL=   1735.01

STA=    9805.    9828.    9851.    9863.    9874.    9884.    9890.    9895.    9910.    9975.    9988.   10019.   10041.
  PER Q=     4.8      4.1      3.6      3.0      4.0      9.0      9.3      6.2      4.6      4.0     40.4      3.3
   AREA=    19.3     18.9     13.5     12.2      9.5     13.4     13.0     14.8     23.0     15.1     56.4     16.7
    VEL=     2.7      2.4      2.9      2.7      4.6      7.4      7.9      4.6      2.2      2.9      7.9      2.2
  DEPTH=      .8       .8      1.2      1.1      1.0      2.2      2.4      1.0       .4      1.2      1.8       .7

STA=   10041.   10074.   10087.
  PER Q=     3.7      .1
   AREA=    20.5     2.0
    VEL=     2.0      .8
  DEPTH=      .6      .2

CCHV=     .100 CEHV=     .300
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 2.105
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    2.105      2.77   1749.77   1749.77       .00   1750.21       .44     11.00       .01   1748.90
   1100.0     133.5     617.0     349.5      67.0      91.1     129.7      49.9      59.1   1749.10
      .59      1.99      6.77      2.70      .080      .035      .070      .000   1747.00   9888.14
  .018436      675.      644.      655.        13         9         0       .00    326.79  10214.93

FLOW DISTRIBUTION FOR SECNO=      2.11          CWSEL=   1749.77

STA=    9888.    9944.    9971.    9990.   10061.   10079.   10091.   10107.   10136.   10159.   10190.   10209.   10215.
  PER Q=     6.5      3.2      2.4     56.1      4.5      5.7      4.2      4.9      4.4      4.2      3.9       .1
   AREA=    35.5     18.2     13.3     91.1     17.4     17.2     15.6     22.3     19.1     20.8     16.6       .8
    VEL=     2.0      1.9      2.0      6.8      2.8      3.6      2.9      2.4      2.5      2.2      2.6       .8
  DEPTH=      .6       .7       .7      1.3      1.0      1.4      1.0       .8       .8       .7       .9       .1

1490 NH CARD USED
*SECNO 2.181

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    2.181      2.68   1759.98   1759.98       .00   1760.56       .58      5.38       .04   1758.90
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    1100.0      88.2     757.6     254.2      56.0     104.9     105.2      52.3      61.6   1758.80
       .61      1.57      7.22      2.42      .080      .035      .070      .000   1757.30   9830.59
   .010625      390.      401.      370.         9         8         0       .00    246.19  10110.96

FLOW DISTRIBUTION FOR SECNO=      2.18          CWSEL=   1759.98

STA=    9831.    9942.    9968.   10017.   10030.   10053.   10065.   10086.   10100.   10111.
  PER Q=      3.0      5.0     68.9      3.5      6.4      3.0      6.0      3.4       .8
   AREA=     28.6     27.4    104.9     15.9     28.1     13.7     26.3     15.8      5.5
    VEL=      1.2      2.0      7.2      2.4      2.5      2.4      2.5      2.4      1.5
  DEPTH=       .3      1.1      2.1      1.2      1.2      1.2      1.2      1.1       .5

1490 NH CARD USED
*SECNO 2.297
7185 MINIMUM SPECIFIC ENERGY
1
   17AUG94      16:28:18                                                                          PAGE   25

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3720 CRITICAL DEPTH ASSUMED
     2.297       2.62   1774.22    1774.22        .00   1774.73        .50       7.72        .01   1773.30
    1100.0       68.5     654.2      377.3       36.0      96.6      100.6       55.8       65.4   1773.50
       .64       1.90      6.77       3.75       .080      .035       .047       .000    1771.60   9935.88
   .015772       625.      612.       575.         12         5          0        .00     307.06  10242.94

FLOW DISTRIBUTION FOR SECNO=      2.30          CWSEL=   1774.22

STA=    9936.    9979.    9989.   10057.   10121.   10131.   10139.   10193.   10243.
  PER Q=      4.4      1.8     59.5      5.4     17.6      5.7      3.9      1.7
   AREA=     26.9      9.1     96.6     25.4     23.0     11.4     25.9     15.0
    VEL=      1.8      2.2      6.8      2.3      8.4      5.5      1.6      1.2
  DEPTH=       .6       .9      1.4       .4      2.4      1.3       .5       .3

1490 NH CARD USED
*SECNO 2.403

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.403       2.42   1788.32    1788.32        .00   1788.68        .37       8.96        .01   1787.60
    1100.0      383.7     336.2      380.2      130.3      43.9      133.0       59.2       69.6   1787.40
       .67       2.94      7.66       2.86       .070      .035       .060       .000    1785.90   9836.26
   .016803       530.      560.       550.         10        10          0        .00     366.57  10209.97

FLOW DISTRIBUTION FOR SECNO=      2.40          CWSEL=   1788.32

STA=    9836.    9886.    9909.    9929.    9934.    9949.    9977.    9991.   10017.   10061.   10069.   10077.   10094.
  PER Q=      3.1      5.0      7.7      4.5      9.1      4.3      1.1     30.6      5.8      6.0      5.8      4.4
   AREA=     19.8     20.7     25.8     11.3     24.9     20.7      7.1     43.9     30.0     10.9     11.2     16.5
    VEL=      1.7      2.6      3.3      4.4      4.0      2.3      1.8      7.7      2.1      6.0      5.7      2.9
  DEPTH=       .4       .9      1.3      2.0      1.8       .7       .5      1.7       .7      1.4      1.3      1.0

STA=   10094.   10103.   10148.   10210.
  PER Q=      3.7      5.7      3.1
   AREA=     12.2     29.7     22.5
    VEL=      3.3      2.1      1.5
  DEPTH=      1.4       .7       .4

1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=     .300
*SECNO 2.494
3280 CROSS SECTION      2.49 EXTENDED       .57 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.494       3.27   1800.77    1800.77        .00   1801.43        .66       7.70        .09   1799.50
    1250.0       67.3     637.1      545.5       34.9      76.8      134.8       62.0       72.5   1799.80
       .69       1.93      8.29       4.05       .080      .035       .060       .000    1797.50   9925.80
   .017295       445.      480.       425.         14        14          0        .00     204.20  10130.00

FLOW DISTRIBUTION FOR SECNO=      2.49          CWSEL=   1800.77

STA=    9926.    9961.    9977.   10019.   10036.   10062.   10072.   10080.   10097.   10123.   10130.
  PER Q=      3.2      2.2     51.0      4.2      5.7      8.0      9.9      8.5      6.4       .9
   AREA=     22.0     12.9     76.8     16.5     23.5     19.0     20.7     25.2     25.1      5.0
    VEL=      1.8      2.1      8.3      3.2      3.1      5.3      6.0      4.2      3.2      2.4
  DEPTH=       .6       .8      1.8      1.0       .9      2.0      2.5      1.5      1.0       .7

1
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THIS RUN EXECUTED 17AUG94 16:28:29

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

WASH A

SUMMARY PRINTOUT

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	SSTA	ENDST	QLOB	QROB	ELTRD
*	.000	1505.10	1509.28	1080.00	9.60	.00	47.17	4.18	9988.44	10035.60	.00	23.06	.00
*	.031	1510.40	1513.51	1080.00	8.85	4.23	50.63	3.11	9982.64	10033.27	.00	.00	.00
*	.094	1518.20	1520.60	1080.00	8.29	7.09	61.91	2.40	9964.68	10026.59	.00	.00	.00
*	.181	1529.70	1533.03	1080.00	8.54	12.43	55.96	3.33	9952.80	10008.76	.00	.00	.00
*	.241	1536.20	1538.96	1080.00	7.94	5.94	70.97	2.76	9960.94	10031.90	.00	.00	.00
*	.347	1547.80	1552.61	1080.00	10.34	13.65	33.70	4.81	9981.40	10074.70	.00	.00	.00
*	.453	1558.80	1564.32	1080.00	7.59	11.71	319.47	5.52	9958.60	10391.44	23.51	207.29	.00
*	.550	1569.90	1572.53	1080.00	7.46	8.21	316.89	2.63	9920.11	10237.00	21.27	587.05	.00
*	.658	1579.30	1583.04	1090.00	7.92	10.51	195.22	3.74	9934.27	10129.49	98.76	244.25	.00
*	.700	1583.80	1586.80	1090.00	6.60	3.77	207.50	3.00	9979.96	10210.50	.00	227.25	.00
*	.723	1585.60	1587.92	1090.00	3.72	1.12	224.27	2.32	9989.79	10253.32	.00	3.26	.00
*	.820	1595.80	1597.88	600.00	6.51	9.96	187.61	2.08	9876.88	10066.99	150.49	150.99	.00
*	.902	1603.80	1606.61	600.00	3.43	8.73	301.05	2.81	9736.90	10157.34	512.96	27.43	.00
*	.990	1614.30	1616.02	600.00	5.34	9.41	277.98	1.72	9754.68	10080.45	253.79	1.10	.00
	1.117	1625.50	1628.80	600.00	4.74	12.78	174.56	3.30	9974.64	10286.19	.00	498.18	.00
*	1.208	1636.20	1638.58	545.00	6.06	9.77	215.11	2.38	9987.94	10474.37	.00	378.90	.00
*	1.306	1648.50	1650.18	545.00	6.82	11.60	224.66	1.68	9954.46	10209.90	15.84	379.13	.00

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	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	SSTA	ENDST	QLOB	QROB	ELTRD
*	1.367	1656.50	1658.40	545.00	5.64	8.22	165.30	1.90	9923.48	10088.78	49.13	23.60	.00
*	1.472	1667.50	1669.80	1100.00	5.34	11.40	372.02	2.30	9997.96	10406.70	.00	353.73	.00
*	1.557	1678.10	1680.40	1100.00	4.69	10.60	364.29	2.30	9852.36	10275.28	273.10	407.74	.00
*	1.629	1686.30	1689.42	1100.00	3.92	9.02	442.64	3.12	9918.44	10361.08	42.27	942.84	.00
*	1.733	1700.80	1702.74	1100.00	4.20	13.32	241.41	1.94	9762.24	10033.68	1006.02	.00	.00
*	1.806	1710.60	1712.60	1100.00	6.63	9.85	303.44	2.00	9726.18	10043.81	585.87	.00	.00
*	1.887	1719.80	1722.35	1100.00	4.99	9.76	435.45	2.55	9644.66	10124.15	638.62	45.31	.00
*	1.983	1731.80	1735.01	1100.00	7.87	12.66	257.99	3.21	9805.29	10087.34	577.10	79.04	.00
*	2.105	1747.00	1749.77	1100.00	6.77	14.77	326.79	2.77	9888.14	10214.93	133.51	349.48	.00
*	2.181	1757.30	1759.98	1100.00	7.22	10.21	246.19	2.68	9830.59	10110.96	88.17	254.18	.00
*	2.297	1771.60	1774.22	1100.00	6.77	14.25	307.06	2.62	9935.88	10242.94	68.51	377.32	.00
*	2.403	1785.90	1788.32	1100.00	7.66	14.09	366.57	2.42	9836.26	10209.97	383.66	380.19	.00
*	2.494	1797.50	1800.77	1250.00	8.29	12.46	204.20	3.27	9925.80	10130.00	67.31	545.54	.00

1
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SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      .000  PROFILE=  1  CRITICAL DEPTH ASSUMED

CAUTION SECNO=      .031  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .031  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .031  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=      .094  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .094  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=      .094  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=      .181  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .181  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .181  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=      .241  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .241  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .241  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=      .347  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .347  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .347  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=      .453  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .453  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .453  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=      .550  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .550  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .550  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=      .658  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .658  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .700  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .700  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      .723  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      .820  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .820  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .820  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=      .902  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .902  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .990  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .990  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     1.208  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.208  PROFILE=  1  MINIMUM SPECIFIC ENERGY
1
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CAUTION SECNO=     1.306  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.306  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     1.367  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     1.472  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     1.557  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.557  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=     1.629  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     1.733  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.733  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     1.806  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.806  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     1.887  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.887  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     1.983  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.983  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     2.105  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     2.105  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     2.181  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     2.181  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     2.297  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     2.297  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     2.403  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     2.403  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     2.494  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     2.494  PROFILE=  1  MINIMUM SPECIFIC ENERGY
```

WASH A SOUTH

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    17AUG94    TIME   18:07:02 *
 *****************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                  X     X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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THIS RUN EXECUTED 17AUG94 18:07:02

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
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T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3      WASH A SOUTH            L. CULLER - (602)244-8100
T4      JOB 15183    PR15183\ETC\WASHA\WASHAS2.IH2          RUN 1

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                2                           -1                                      1507

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
    -1                  -1                                                                      15

J3  VARIABLE CODES FOR SUMMARY PRINTOUT
     38        42         1        43        26        51         4         8        53        54
     13        15        40

QT       1      1090
NC     .08       .08       .04       0.1       0.3
X1   0.658        20    9981.0   10012.2
GR  1584.0    9878.2    1584.1    9904.0    1583.7    9927.5    1582.2    9942.8    1581.5    9962.7
GR  1582.3    9981.0    1579.3    9991.9    1579.3   10000.0    1579.3   10007.5    1581.8   10012.2
GR  1581.3   10022.0    1581.3   10049.1    1582.4   10064.8    1582.7   10080.7    1582.4   10095.0
GR  1582.8   10108.0    1582.4   10119.6    1582.4   10125.2    1583.6   10133.3    1583.6   10143.6
```

THE CONFLUENCE WITH WASH A IS AT RIVER MILE 0.000. THE DISCHARGE IS NOT CHANGED FROM THE VALUE BELOW THE CONFLUENCE TO THE VALUE ABOVE THE CONFLUENCE UNTIL SECTION 0.121. (SEE SPECIAL PROBLEM NO. 9A)

```
NC     .08       .08      .035       0.1       0.3
NH       5       .08    9905.5      .035    9970.7       .08    9976.8      .035   10019.0       .08
NH   10162.
X1   0.016        28    9905.5   10019.0       195       190       222
GR  1587.5    9859.3    1587.7    9874.6    1587.6    9895.4    1587.4    9905.5    1586.4    9921.8
GR  1583.9    9931.6    1583.8    9935.3    1584.1    9942.3    1585.6    9947.7    1586.0    9961.0
GR  1587.5    9970.7    1588.0    9976.8    1584.7    9990.9    1584.5   10000.0    1584.6   10008.0
GR  1587.6   10019.0    1586.3   10026.1    1586.6   10050.7    1585.3   10053.0    1585.6   10060.4
GR  1585.9   10079.6    1585.6   10101.4    1585.7   10122.3    1586.1   10130.9    1586.1   10143.6
GR  1587.6   10148.3    1588.6   10156.9    1587.8   10162.0       0.0       0.0       0.0       0.0
```

FOREST SERVICE ROAD IS AT RIVER MILE 0.022 (LOW CROSSING, NO STRUCTURE)

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```
NC     .08       .02       .03       0.1       0.3
NH       7       .07    9835.3       .04    9858.4       .07    9899.4       .08    9913.6       .03
NH   10045.       .08   10069.6       .02   10131.2
X1   0.028        30    9835.3   10045.0       125        90       121
GR  1590.3    9685.4    1589.9    9707.5    1589.5    9735.4    1588.7    9770.2    1589.2    9782.5
GR  1589.9    9789.6    1588.7    9806.6    1588.4    9835.3    1586.3    9844.5    1586.2    9847.6
GR  1586.3    9850.3    1588.4    9858.4    1587.5    9871.1    1587.3    9886.8    1586.8    9899.4
GR  1585.8    9909.3    1587.0    9913.6    1586.5    9926.1    1586.0    9942.5    1585.6    9971.8
GR  1585.9   10000.0    1586.4   10019.8    1587.3   10045.0    1588.1   10069.6    1588.2   10086.2
GR  1587.8   10098.9    1588.8   10115.3    1589.8   10124.7    1589.4   10129.0    1589.3   10131.2

QT       1       490
NC     .07       .02       .03       0.1       0.3
X1   0.121        16    9986.8   10036.9       525       490       491
GR  1598.7   9902.67    1598.7   9902.68    1598.7   9902.69    1598.7    9902.7    1598.4    9928.1
GR  1598.5    9956.2    1598.5    9979.6    1598.5    9986.8    1595.8    9991.8    1595.2   10000.0
```

```
GR   1595.5    10009.5     1595.9    10011.8     1597.1    10014.4     1597.9    10023.2     1598.5    10036.9
GR   1598.4    10038.9       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0

NC     .07        .07       .03        0.1        0.3
X1   0.207         16    9993.2    10051.9        445        415        454
GR   1607.5    9993.18    1607.5    9993.19     1607.5     9993.2     1605.4    10000.0     1605.4    10005.0
GR   1605.5    10013.9    1606.1    10015.4     1606.2    10023.5     1605.7    10035.9     1606.3    10040.7
GR   1607.3    10051.9    1606.8    10070.6     1606.5    10072.3     1607.1    10089.0     1607.7    10112.9
GR   1607.8    10123.1
```

FLOW SPLITTING OCCURS BELOW SECTION 0.512, AFFECTS SECTIONS 0.308 AND 0.411, AND RE-ENTERS WASH A SOUTH UPSTREAM OF SECTION 0.207. FLOW IN WASH A SOUTH IS REDUCED TO 435 CFS. THE REMAINING 55 CFS ENTERS TRIBUTARY 1 IN THE LEFT OVERBANK. (SEE SPECIAL PROBLEM NO. 2AS)

```
NC     .07        .02       .03        0.1        0.3
NH       5        .07    9945.4        .04     9958.5        .07     9993.8        .03    10025.4        .02
NH   10056.
X1   0.308         20    9993.8    10025.4        505        505        533
GR   1619.1    9932.77    1619.1    9932.78     1619.1    9932.79     1619.1     9932.8     1619.2     9937.5
GR   1617.2     9945.4    1616.6     9949.8     1615.4     9955.6     1617.7     9958.5     1618.4     9968.2
GR   1618.9     9982.9    1619.0     9993.8     1616.0    10000.0     1616.2    10014.9     1616.2    10020.2
GR   1618.4    10025.4    1617.9    10029.8     1619.1    10039.9     1619.1    10053.2     1618.9    10056.0

NH       5        .07    9899.7        .04     9930.3        .07     9991.8        .03    10032.9        .02
NH   10049.
X1   0.411         17    9991.8    10032.9        545        565        544
GR   1629.9     9861.1    1629.8     9880.0     1629.9     9899.7     1628.5     9905.6     1628.4     9913.5
GR   1628.8     9923.0    1630.1     9930.3     1630.2     9946.7     1629.6     9958.3     1630.2     9967.8
GR   1630.3     9978.6    1630.3     9991.8     1626.8    10000.0     1626.8    10014.5     1629.0    10025.3
GR   1630.6    10032.9    1630.4    10049.0        0.0        0.0        0.0        0.0        0.0        0.0
```

FLOW BREAKOUTS OCCUR AT BOTH ENDS OF THIS SECTION. RATING CURVES FOR THIS SECTION AND BOTH DIVIDES WERE DEVELOPED AND SUMMED TO DETERMINE THAT 55 CFS AND 25 CFS EXITS WASH A SOUTH ON THE LEFT AND RIGHT SIDES,

RESPECTIVELY. THE LEFT SIDE BREAKOUT ENTERS WASH A. THE FLOW IN WASH A SOUTH IS REDUCED TO 465 CFS. (SEE SPECIAL PROBLEM NO. 1AS)

```
QT       1        465
NC     .07        .07       .04        0.1        0.3
X1   0.512         15    9995.4    10020.3        470        515        533
GR   1639.7     9989.3    1639.1     9995.4     1636.9    10000.0     1637.0    10005.6     1637.6    10012.2
GR   1638.9    10020.3    1639.5    10032.3     1639.7    10034.9     1639.8    10052.1     1639.5    10066.2
GR   1639.3    10081.7    1639.1    10089.8     1639.4    10104.7     1639.9    10120.3     1639.9    10133.1

QT       1        545
NC     .08        .08      .035        0.1        0.3
X1   0.599         19    9983.7    10020.5        495        440        459
GR   1649.5    9942.89    1649.5     9942.9     1648.7     9951.1     1647.4     9958.1     1649.0     9961.8
GR   1649.3     9968.2    1648.7     9983.7     1648.2     9998.7     1646.9    10000.0     1646.9    10006.3
GR   1647.0    10013.1    1648.0    10020.5     1648.6    10039.4     1648.6    10056.5     1648.4    10073.8
GR   1649.0    10087.6    1649.7    10102.5     1650.3    10116.3     1651.2    10127.4

NH       5        .08    9994.3      .035    10015.3        .08    10153.2        .04    10171.4        .08
NH   10274.
X1   0.682         29    9994.3    10015.3        415        410        438
GR   1659.7    9886.27    1659.7    9886.28     1659.7    9886.29     1659.7     9886.3     1659.5     9898.4
GR   1658.7     9910.5    1659.0     9926.3     1658.9     9935.4     1658.4     9962.9     1657.8     9987.5
GR   1657.7     9994.3    1655.4    10000.0     1655.5    10003.5     1657.5    10015.3     1657.7    10032.0
GR   1657.8    10052.2    1657.5    10078.3     1657.8    10100.8     1657.5    10118.1     1657.0    10138.1
GR   1657.0    10140.2    1657.2    10153.2     1656.4    10159.2     1656.4    10165.5     1657.6    10171.4
GR   1657.5    10193.6    1658.1    10219.4     1658.9    10248.5     1659.4    10274.0
```

THE CONFLUENCE WITH WASH A IS AT RIVER MILE 0.896. THE DISCHARGE IS CHANGED FROM THE VALUE BELOW THE CONFLUENCE TO THE VALUE ABOVE THE CONFLUENCE AT CROSS SECTION 0.774. (SEE SPECIAL PROBLEM NO. 4A)

```
QT       1       1100
NH       9        .08    9820.4      .035     9854.0        .08     9867.2        .04     9885.5        .08
NH  9977.7       .035   10011.8        .08    10200.5        .04    10214.9        .08    10253.2
X1   0.774         40    9820.4    10011.8        565        505        486
GR   1671.9     9679.8    1671.2     9711.3     1670.5     9746.8     1670.7     9776.9     1670.1     9807.6
GR   1669.9     9820.4    1669.0     9822.7     1669.3     9834.6     1669.7     9844.1     1669.9     9854.0
GR   1669.5     9867.2    1668.8     9875.1     1669.5     9885.5     1669.6     9907.0     1669.5     9917.9
GR   1669.2     9941.8    1668.6     9959.9     1668.6     9977.7     1667.6     9980.9     1668.4     9991.7
GR   1668.4    10000.0    1667.5    10006.4     1668.4    10011.8     1669.0    10032.6     1669.0    10061.6
GR   1668.9    10064.2    1668.9    10084.8     1669.8    10110.5     1669.7    10127.5     1669.0    10145.1
GR   1669.5    10153.2    1669.7    10171.4     1670.6    10183.5     1670.1    10200.5     1668.0    10205.6
GR   1668.0    10209.8    1669.2    10214.9     1669.5    10223.0     1670.1    10235.8     1670.3    10253.2
```

A MINOR FLOW BREAKOUT OCCURS AT THE LEFT END OF SECTION 0.867 (SECTION 1.557, WASH A). THE ESTIMATED BREAKOUT FLOW IS SMALL AND THE FLOW IN WASH A IS NOT REDUCED. (SEE SPECIAL PROBLEM NO. 5A)


```
NC     .08        .08      .035        0.1        0.3
NH      11        .08    9814.1        .04     9820.1        .08     9858.2        .04     9881.4        .08
NH  9910.3       .035    9923.3        .08    10000.0       .035    10017.3        .08    10100.0        .04
NH  10125.        .08   10247.4
X1   0.867         41   10000.0    10017.3        400        490        454
GR   1680.5     9740.3    1680.4     9766.2     1679.9     9780.0     1679.7     9786.4     1680.5     9797.5
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GR   1680.4     9814.1     1678.7     9815.4     1680.5     9820.1     1680.5     9837.1     1680.2     9858.2
GR   1679.1     9872.7     1679.4     9881.4     1679.7     9900.9     1679.9     9910.3     1678.9     9913.3
GR   1679.0     9917.3     1679.1     9920.5     1679.8     9923.3     1679.5     9938.7     1679.3     9957.3
GR   1679.7     9972.6     1679.5     9977.8     1679.7     9987.4     1679.8    10000.0     1679.7    10008.5
GR   1680.2    10017.3     1680.0    10040.1     1680.1    10057.2     1679.7    10072.0     1680.1    10086.9
GR   1679.9    10100.0     1678.1    10103.4     1679.1    10111.8     1680.3    10125.0     1680.7    10144.4
GR   1679.1    10158.6     1680.0    10176.4     1680.7    10197.6     1681.1    10215.0     1681.7    10229.7
GR   1681.9    10247.4
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1
0
 CCHV=     .100 CEHV=     .300
 *SECNO  .658
 3720 CRITICAL DEPTH ASSUMED
      .658      3.74   1583.04   1583.04   1507.00   1583.73       .68       .00       .00   1582.30
    1090.0      99.3     745.2     245.5      48.4      94.6     111.6        .0        .0   1581.80
       .00      2.05      7.88      2.20      .080      .040      .080      .000   1579.30   9934.18
   .010692        0.        0.        0.         0        19         0       .00    195.37  10129.55

 FLOW DISTRIBUTION FOR SECNO=       .66          CWSEL=   1583.04

 STA=    9934.    9963.    9981.   10012.   10022.   10049.   10065.   10125.   10130.
   PER Q=      5.1      4.0     68.4      3.4     12.1      3.7      3.2       .1
    AREA=     27.4     20.9     94.6     14.6     47.3     18.8     29.5      1.4
     VEL=      2.0      2.1      7.9      2.5      2.8      2.2      1.2       .9
   DEPTH=      1.0      1.1      3.0      1.5      1.7      1.2       .5       .3

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO  .016

 3265 DIVIDED FLOW

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      .016      3.00   1586.80   1586.80       .00   1587.35       .55      2.59       .01   1587.40
    1090.0        .0     862.8     227.2        .0     130.6     105.8       1.2        .9   1587.60
       .01       .00      6.61      2.15      .000      .035      .080      .000   1583.80   9915.27
   .013853      195.      222.      190.        10        16         0       .00    207.49  10145.80

 FLOW DISTRIBUTION FOR SECNO=       .02          CWSEL=   1586.80

 STA=    9915.    9971.   10019.   10060.   10080.   10101.   10122.   10146.
   PER Q=     43.5     35.7      3.7      4.2      4.7      5.3      2.9
    AREA=     74.3     56.3     21.3     20.2     22.9     24.1     17.4
     VEL=      6.4      6.9      1.9      2.3      2.3      2.4      1.8
   DEPTH=      1.5      1.7       .5      1.1      1.1      1.2       .7
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO  .028

 3265 DIVIDED FLOW

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.94

      .028      2.32   1587.92       .00       .00   1588.14       .22       .75       .03   1588.40
    1090.0        .0    1086.7      3.3        .0     291.5       6.3       1.9       1.5   1587.30
       .02       .00      3.73       .53      .000      .031      .075      .000   1585.60   9837.39
   .003666      125.      121.       90.         3         0         0       .00    224.18  10100.93

 FLOW DISTRIBUTION FOR SECNO=       .03          CWSEL=   1587.92

 STA=    9837.    9865.    9899.    9914.   10045.   10101.
   PER Q=      4.4      1.7      3.2     90.4       .3
    AREA=     20.6     20.5     22.6    227.8      6.3
     VEL=      2.3       .9      1.5      4.3       .5
   DEPTH=      1.1       .6      1.6      1.7       .1

 CCHV=     .100 CEHV=     .300
 *SECNO  .121

 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
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3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     .121       2.86   1598.06   1598.06       .00   1598.91       .85      2.40       .19   1598.50
    490.0         .0     490.0       .0        .0      66.2        .0       3.9       3.0   1598.50
      .04        .00      7.40       .00      .000      .030      .000      .000   1595.20   9987.61
  .011472       525.      491.      490.        20        11         0       .00     39.27  10026.88

FLOW DISTRIBUTION FOR SECNO=       .12          CWSEL=   1598.06

STA=    9988.   10037.
  PER Q=    100.0
   AREA=     66.2
    VEL=      7.4
  DEPTH=      1.7
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

CCHV=     .100 CEHV=     .300
*SECNO  .207
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     .207       1.98   1607.38   1607.38       .00   1607.93       .55      4.99       .03   1607.50
    490.0         .0     465.8      24.2        .0      76.6      18.7       4.7       3.7   1607.30
      .06        .00      6.08      1.30      .000      .030      .070      .000   1605.40   9993.59
  .010594       445.      454.      415.         3        19         0       .00    106.56  10100.15

FLOW DISTRIBUTION FOR SECNO=       .21          CWSEL=   1607.38

STA=    9994.   10052.   10071.   10072.   10089.   10100.
  PER Q=     95.1      1.3       .4      3.0       .2
   AREA=     76.6      6.2      1.2      9.7      1.6
    VEL=      6.1      1.0      1.8      1.5       .6
  DEPTH=      1.3       .3       .7       .6       .1

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO  .308

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     .308       2.71   1618.11   1618.11       .00   1618.84       .73      5.83       .05   1619.00
    490.0      127.1     362.2        .7      24.9      49.1        .4       5.8       4.7   1618.40
      .08       5.10      7.38      1.78      .041      .030      .020      .000   1615.40   9941.79
  .011508       505.      533.      505.        14        11         0       .00     55.17  10031.59

FLOW DISTRIBUTION FOR SECNO=       .31          CWSEL=   1618.11

STA=    9942.    9945.    9950.    9956.    9959.    9964.   10025.   10030.   10032.
  PER Q=       .4      4.9     16.2      4.2       .2     73.9       .1       .1
   AREA=      1.6      5.3     12.3      4.5      1.2     49.1       .2       .2
    VEL=      1.3      4.5      6.5      4.6       .8      7.4      1.8      1.8
  DEPTH=       .5      1.2      2.1      1.6       .2      1.7       .0       .1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO  .411

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     .411       2.59   1629.39   1629.39       .00   1630.10       .70      5.56       .00   1630.30
    490.0       53.2     436.8        .0      17.6      61.9        .0       6.7       5.4   1630.60
      .10       3.02      7.05       .00      .040      .030      .000      .000   1626.80   9901.84
  .009123       545.      544.      565.         5        11         0       .00     57.72  10027.16

FLOW DISTRIBUTION FOR SECNO=       .41          CWSEL=   1629.39

STA=    9902.    9906.    9914.    9923.    9926.   10033.
  PER Q=       .7      5.2      4.7       .3     89.1
   AREA=      1.7      7.4      7.5      1.0     61.9
    VEL=      2.0      3.4      3.0      1.6      7.1
  DEPTH=       .4       .9       .8       .3      1.9

CCHV=     .100 CEHV=     .300
*SECNO  .512
3280 CROSS SECTION       .51 EXTENDED       .33 FEET

7185 MINIMUM SPECIFIC ENERGY
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3720 CRITICAL DEPTH ASSUMED
      .512      3.13   1640.03   1640.03      .00   1640.54      .52      4.94      .02   1639.10
     465.0      5.6     375.4      84.0      3.8      58.9     56.5       7.9      6.6   1638.90
       .13      1.47      6.37      1.49     .070      .040     .070      .000  1636.90   9989.30
   .009645     470.      533.      515.       11        11        0       .00   143.80  10133.10

FLOW DISTRIBUTION FOR SECNO=       .51          CWSEL=   1640.03

STA=    9989.    9995.   10020.   10032.   10035.   10052.   10066.   10082.   10090.   10105.   10120.   10133.
  PER Q=      1.2     80.7      3.9      .3       .9      1.2      3.2      2.6      4.4      1.4       .2
   AREA=      3.8     58.9      9.9     1.1      4.7      5.3      9.7      6.7     11.6      5.9      1.6
    VEL=      1.5      6.4      1.8     1.2       .9      1.1      1.5      1.8      1.8      1.1       .5
  DEPTH=       .6      2.4       .8      .4       .3       .4       .6       .8       .8       .4       .1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

CCHV=     .100 CEHV=     .300
*SECNO  .599
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .599      2.43   1649.33   1649.33      .00   1649.85      .52      5.15      .00   1648.70
     545.0     38.8     402.4     103.8     21.3      60.4     55.9       9.3      8.1   1648.00
       .15      1.82      6.66      1.86     .080      .035     .080      .000  1646.90   9944.68
   .012994     495.      459.      440.        9        19        0       .00   149.87  10094.55

FLOW DISTRIBUTION FOR SECNO=       .60          CWSEL=   1649.33

STA=    9945.    9951.    9958.    9962.    9968.    9984.   10021.   10039.   10057.   10074.   10088.   10095.
  PER Q=      .4      4.0      1.7      .1       .9     73.8      7.7      3.9      4.9      2.5       .1
   AREA=      2.0      8.9      4.2     1.1      5.1     60.4     19.4     12.4     14.3      8.6      1.1
    VEL=      1.0      2.5      2.2      .7      1.0      6.7      2.2      1.7      1.9      1.5       .6
  DEPTH=       .3      1.3      1.1      .2       .3      1.6      1.0       .7       .8       .6       .2

1490 NH CARD USED
*SECNO  .682
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .682      2.74   1658.14   1658.14      .00   1658.50      .36      5.27      .02   1657.70
     545.0      4.4     253.1     287.6      5.1     37.9     131.0     10.8      10.0   1657.50
       .18      .86      6.68      2.19     .080      .035     .062      .000  1655.40   9973.46
   .011717     415.      438.      410.       11         8        0       .00   247.48  10220.95

FLOW DISTRIBUTION FOR SECNO=       .68          CWSEL=   1658.14

STA=    9973.    9994.   10015.   10052.   10101.   10138.   10153.   10159.   10166.   10171.   10194.   10221.
  PER Q=      .8     46.4      3.8      5.5      8.1      6.1      7.2     11.7      5.4      3.4      1.6
   AREA=      5.1     37.9     17.0     23.9     26.4     16.0      8.1     11.0      6.7     13.2      8.9
    VEL=      .9      6.7      1.2      1.3      1.7      2.1      4.9      5.8      4.3      1.4      1.0
  DEPTH=       .2      1.8       .5       .5       .7      1.1      1.3      1.7      1.1       .6       .3

1490 NH CARD USED
*SECNO  .774
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .774      2.31   1669.81   1669.81      .00   1670.15      .33      8.73      .00   1669.90
    1100.0        .0     745.0     355.0       .0     142.0     119.8     13.2      13.5   1668.40
       .21       .00      5.25      2.96     .000      .036     .066      .000  1667.50   9820.63
   .022440     565.      486.      505.       10        10        0       .00   373.45  10229.65

FLOW DISTRIBUTION FOR SECNO=       .77          CWSEL=   1669.81

STA=    9821.    9857.    9867.    9886.    9978.   10012.   10033.   10062.   10085.   10145.   10210.   10215.   10230.
  PER Q=      3.8       .1      4.6     10.6     48.5      6.3      5.2      5.0      3.1      8.6      3.5       .6
   AREA=     12.0      1.6     12.1     57.6     58.7     23.1     23.5     21.0     21.0     20.1      6.2      4.8
    VEL=      3.5       .8      4.2      2.0      9.1      3.0      2.4      2.6      1.6      4.7      6.2      1.5
  DEPTH=       .4       .2       .7       .6      1.7      1.1       .8       .9       .3       .3      1.2       .3

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO  .867

3265 DIVIDED FLOW

3280 CROSS SECTION       .87 EXTENDED       .03 FEET

      .867      2.43   1680.53      .00       .00   1680.75      .23     10.60      .01   1679.80
```

1100.0	635.7	60.9	403.4	170.2	11.8	108.7	16.1	17.8	1680.20
.25	3.73	5.16	3.71	.059	.035	.056	.000	1678.10	9740.30
.024655	400.	454.	490.	4	0	0	.00	442.71	10192.56

FLOW DISTRIBUTION FOR SECNO= .87 CWSEL= 1680.53

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

STA=	9740.	9815.	9873.	9881.	9901.	9913.	9917.	9921.	9939.	9957.	9973.	9987.	10000.
PER Q=	3.1	8.7	7.0	5.0	3.7	5.2	3.7	5.2	6.1	4.3	3.5	2.2	
AREA=	19.6	21.6	11.2	19.2	10.3	6.3	4.7	16.6	21.1	15.8	13.8	9.9	
VEL=	1.8	4.4	6.9	2.9	3.9	9.1	8.7	3.5	3.2	3.0	2.8	2.5	
DEPTH=	.3	.4	1.3	1.0	.8	1.6	1.5	.9	1.1	1.0	.9	.8	

STA=	10000.	10017.	10072.	10100.	10103.	10112.	10125.	10176.	10193.
PER Q=	5.5	4.7	3.1	3.4	13.3	5.2	6.6	.5	
AREA=	11.8	27.5	16.4	5.2	16.2	11.0	28.0	4.3	
VEL=	5.2	1.9	2.1	7.1	9.0	5.2	2.6	1.2	
DEPTH=	.7	.5	.6	1.5	1.9	.8	.5	.3	

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THIS RUN EXECUTED 17AUG94 18:07:04

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

WASH A SOUTH

SUMMARY PRINTOUT

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	SSTA	ENDST	QLOB	QROB	ELTRD
*	.658	1579.30	1583.04	1090.00	7.88	.00	195.37	3.74	9934.18	10129.55	99.33	245.50	.00
*	.016	1583.80	1586.80	1090.00	6.61	3.76	207.49	3.00	9915.27	10145.80	.00	227.20	.00
*	.028	1585.60	1587.92	1090.00	3.73	1.12	224.18	2.32	9837.39	10100.93	.00	3.35	.00
*	.121	1595.20	1598.06	490.00	7.40	10.14	39.27	2.86	9987.61	10026.88	.00	.00	.00
*	.207	1605.40	1607.38	490.00	6.08	9.32	106.56	1.98	9993.59	10100.15	.00	24.23	.00
*	.308	1615.40	1618.11	490.00	7.38	10.73	55.17	2.71	9941.79	10031.59	127.10	.69	.00
*	.411	1626.80	1629.39	490.00	7.05	11.28	57.72	2.59	9901.84	10027.16	53.17	.00	.00
*	.512	1636.90	1640.03	465.00	6.37	10.63	143.80	3.13	9989.30	10133.10	5.61	84.01	.00
*	.599	1646.90	1649.33	545.00	6.66	9.30	149.87	2.43	9944.68	10094.55	38.81	103.78	.00
*	.682	1655.40	1658.14	545.00	6.68	8.82	247.48	2.74	9973.46	10220.95	4.37	287.57	.00
*	.774	1667.50	1669.81	1100.00	5.25	11.67	373.45	2.31	9820.63	10229.65	.00	355.02	.00
	.867	1678.10	1680.53	1100.00	5.16	10.72	442.71	2.43	9740.30	10192.56	635.74	403.37	.00

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SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= .658 PROFILE= 1 CRITICAL DEPTH ASSUMED

CAUTION SECNO= .016 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= .016 PROFILE= 1 MINIMUM SPECIFIC ENERGY

WARNING SECNO= .028 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= .121 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= .121 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= .121 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= .207 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= .207 PROFILE= 1 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= .308 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= .308 PROFILE= 1 MINIMUM SPECIFIC ENERGY

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CAUTION SECNO=        .411  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=        .411  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=        .512  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=        .512  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=        .599  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=        .599  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=        .682  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=        .682  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=        .774  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=        .774  PROFILE=  1  MINIMUM SPECIFIC ENERGY
```

WASH F

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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    09AUG94    TIME   13:35:20 *
 *****************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                  X     X
XXXXXXX  XXXX     X           XXXXX   XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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1                                                                                                                PAGE    1
   09AUG94       13:35:20

                                                                                  THIS RUN EXECUTED 09AUG94     13:35:20
 ************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
 ************************************

 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 93-06
 T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
 T3      WASH F                  (NATURAL)        L. CULLER - (602)244-8100
 T4      JOB 15183   PR15183\ETC\WASHF\WASHF.IH2    RUN   1

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                           -1                                      1507

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      -1                  -1                                                                     15

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        42         1        43        26        51         4         8        53        54
      13        15        40

 QT        1       610
 NC      .08       .08      .055       0.1       0.3
 X1     .000        12    9927.4   10048.4
 GR   1536.3    9907.1    1536.3    9907.1    1535.3    9927.4    1525.6    9934.2    1525.6    9958.8
 GR   1525.6    9977.2    1526.0   10000.0    1525.8   10037.0    1535.3   10048.4    1535.1   10067.3
 GR   1535.9   10079.2    1535.9   10092.3

 NC      .08       .08      .050       0.1       0.3
 X1     .095        15    9902.9   10037.2       540       490       502
 GR   1560.0    9838.9    1558.9    9845.8    1554.2    9863.2    1547.6    9878.2    1545.7    9883.9
 GR   1545.7    9902.9    1544.7    9914.3    1544.3    9930.0    1544.4    9945.8    1544.6    9962.0
 GR   1543.4    9973.3    1543.1    9991.6    1542.6   10000.0    1542.7   10023.3    1562.7   10037.2

 NC      .07       .08      .045       0.1       0.3
 X1     .195        13    9981.0   10028.7       425       575       528
 GR   1570.4    9913.2    1565.8    9928.4    1567.7    9941.7    1565.2    9954.6    1564.5    9959.7
 GR   1565.2    9969.1    1562.4    9981.0    1559.3    9996.7    1559.0   10000.0    1559.0   10015.7
 GR   1559.2   10023.3    1561.8   10028.7    1562.6   10038.9

 NC      .08       .08       .04       0.1       0.3
 X1     .305        13    9962.7   10015.7       610       530       581
 GR   1583.6    9928.6    1583.4    9938.6    1582.8    9953.4    1581.5    9962.7    1578.4    9975.3
 GR   1577.7    9980.0    1576.2    9985.1    1576.2   10000.0    1576.4   10008.4    1578.8   10015.7
 GR   1579.6   10034.2    1580.2   10048.4    1580.2   10053.8
1                                                                                                                PAGE    2
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 NH        5       .08    9921.9       .04    9951.2       .08    9980.6       .04   10017.8       .07
 NH   10024.
 X1     .374        16    9980.6   10017.8       340       385       364
 GR   1590.7    9875.6    1589.2    9897.0    1588.0    9906.6    1587.6    9921.9    1586.0    9929.5
 GR   1585.8    9938.8    1586.1    9947.9    1587.3    9951.2    1587.2    9965.0    1587.1    9980.6
 GR   1586.2    9987.3    1585.5    9992.7    1585.3   10000.0    1585.6   10011.9    1587.7   10017.8
 GR   1587.7   10024.0

        FOREST SERVICE ROAD IS AT RIVER MILE 0.385 (LOW CROSSING, NO STRUCTURE)

 NH        5       .08    9907.9       .04    9945.9       .08    9973.5       .04   10028.5       .07
 NH   10112.
 X1     .390        22    9973.5   10028.5        85        85        85
 GR   1592.0   9876.69    1592.0    9876.7    1591.4    9887.7    1590.0    9895.7    1590.2    9907.9
 GR   1588.5    9920.7    1588.4    9931.5    1588.6    9938.5    1590.0    9945.9    1589.8    9959.9
 GR   1589.5    9973.5    1587.8    9989.7    1587.6    9997.8    1587.6   10000.0    1587.7   10005.5
 GR   1588.7   10015.1    1589.5   10028.5    1590.2   10051.6    1591.3   10073.4    1593.2   10091.1
 GR   1593.9   10098.1    1594.3   10112.0
```

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        SECTION 0.480 CONTOURS ARE ALTERED FROM STA. 9875.8 TO STA. 9919.2
        TO REFLECT EFFECTIVE FLOW CONDITIONS - SEE SPECIAL PROBLEM NO. 30

NH        5        .08     9942.7       .04     9958.4       .08     9966.8       .04    10021.0       .07
NH    10034.
X1     .480         20     9966.8   10021.0       470       450       475
GR    1604.0     9875.8    1604.0    9880.5    1604.0    9890.0    1604.0    9893.0    1602.2    9919.2
GR    1602.2     9931.1    1601.8    9942.7    1600.5    9950.8    1600.7    9954.1    1602.4    9958.4
GR    1602.9     9966.8    1602.1    9975.6    1601.1    9978.9    1601.3    9985.7    1602.2    9990.5
GR    1601.2     9997.9    1601.2   10000.0    1601.0   10014.5    1605.5   10021.0    1607.0   10034.0

NH        5        .08     9932.4       .04     9954.3       .08     9993.5       .04    10015.8       .07
NH    10133.
X1     .569         25     9993.5   10015.8       435       480       470
GR    1616.1    9885.07    1616.1   9885.08    1616.1   9885.09    1616.1    9885.1    1615.6    9898.7
GR    1614.3     9912.7    1613.6    9926.1    1613.7    9932.4    1612.3    9934.9    1612.1    9946.6
GR    1612.0     9954.3    1612.6    9964.9    1613.1    9986.3    1613.1    9993.5    1612.2   10000.0
GR    1612.5    10008.7    1613.7   10015.8    1613.6   10028.6    1614.6   10036.5    1614.4   10047.2
GR    1615.4    10060.0    1616.1   10076.7    1616.7   10095.8    1617.6   10115.2    1618.3   10133.0

        SECTION 0.683 FLOODED AREA IS BEING SHOWN AS SPLIT FLOODED AREA
        WITHOUT THE FLOW OR THE PROFILE BEING CALCULATED FOR THE SPLIT CHANNEL
        SEE SPECIAL PROBLEM NO. 29

NH        5        .07     9811.2       .04     9853.5       .07     9971.5      .035    10017.5       .07
NH    10104.
X1     .683         30     9971.5   10017.5       510       590       602
GR    1629.1    9801.07    1629.1   9801.08    1629.1   9801.09    1629.1    9801.1    1629.0    9811.2
GR    1626.7     9827.9    1626.8    9838.9    1626.6    9848.1    1628.7    9853.5    1628.7    9865.5
GR    1628.6     9870.4    1628.0    9877.0    1629.4    9886.4    1629.6    9908.8    1630.0    9930.7
GR    1629.7     9955.0    1629.0    9971.5    1627.9    9986.6    1627.0    9998.8    1626.9   10000.0
1
   09AUG94      13:35:20                                                                          PAGE    3

GR    1626.8    10012.6    1628.6   10017.5    1628.6   10027.2    1627.4   10038.9    1628.0   10051.4
GR    1628.9    10065.2    1629.8   10076.8    1630.2   10088.7    1629.5   10094.9    1630.3   10104.0

        SECTION 0.790 FLOODED AREA IS BEING SHOWN AS SPLIT FLOODED AREA
        WITHOUT THE FLOW OR THE PROFILE BEING CALCULATED FOR THE SPLIT CHANNEL
        SEE SPECIAL PROBLEM NO. 28

NH        5        .08     9976.7      .035    10009.7       .08    10126.2       .04    10160.6       .08
NH    10175.
X1     .790         22     9976.7   10009.7       550       560       565
GR    1642.7     9925.6    1642.9    9942.6    1641.9    9954.4    1640.4    9968.0    1640.8    9976.7
GR    1639.6     9983.8    1639.4    9995.0    1639.5   10000.0    1640.4   10009.7    1641.6   10023.1
GR    1643.6    10032.2    1643.9   10046.8    1643.9   10064.1    1643.2   10076.4    1642.9   10093.8
GR    1641.7    10105.9    1641.9   10119.6    1641.4   10126.2    1640.0   10139.7    1639.5   10149.7
GR    1642.4    10160.6    1642.4   10175.0

NC      .08        .08      .035        .1        .3
X1     .856         12     9976.2   10017.7       340       355       348
GR    1650.5    9968.19    1650.5    9968.2    1649.9    9976.2    1648.1    9987.1    1648.1   10000.0
GR    1648.4    10013.4    1651.2   10017.7    1650.7   10033.1    1651.2   10051.0    1651.5   10073.9
GR    1651.6    10096.7    1651.6   10113.1       0.0       0.0       0.0       0.0       0.0       0.0

NC      .07        .07      .035        0.1       .03
X1     .961          9     9973.9   10020.4       550       555       549
GR    1663.7     9944.1    1663.6    9959.6    1663.0    9973.9    1659.9    9987.9    1659.4   10000.0
GR    1659.5    10017.4    1662.9   10020.4    1663.2   10032.5    1663.5   10049.3


1
   09AUG94      13:35:20                                                                          PAGE    4

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF 1
0

 CCHV=     .100 CEHV=     .300
 *SECNO  .000
 3720 CRITICAL DEPTH ASSUMED
      .000       1.18   1526.78   1526.78   1507.00   1527.29       .51       .00       .00   1535.30
     610.0         .0     610.0        .0        .0     106.2        .0        .0        .0    1535.30
       .00        .00      5.74       .00      .000      .055      .000      .000   1525.60    9933.38
   .044912         0.        0.        0.         0        44         0       .00    104.79   10038.17


 FLOW DISTRIBUTION FOR SECNO=       .00          CWSEL=   1526.78

 STA=    9933.   10048.
   PER Q=     100.0
    AREA=     106.2
     VEL=       5.7
   DEPTH=       1.0

 CCHV=     .100 CEHV=     .300
 *SECNO  .095
      .095       2.15   1544.75       .00       .00   1545.17       .42     17.88       .01   1545.70
     610.0         .0     610.0        .0        .0     117.2        .0       1.3       1.2   1562.70
```

```
      .03       .00      5.20       .00      .000      .050      .000      .000   1542.60   9913.66
  .028929      540.      502.      490.         6         0         0       .00    111.06  10024.73

FLOW DISTRIBUTION FOR SECNO=       .09          CWSEL=   1544.75

STA=    9914.   10037.
  PER Q=     100.0
   AREA=     117.2
    VEL=       5.2
  DEPTH=       1.1

CCHV=     .100 CEHV=     .300
*SECNO  .195

3301 HV CHANGED MORE THAN HVINS
```



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   09AUG94      13:35:20

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .195       2.39   1561.39   1561.39       .00   1562.33       .95      14.10       .16   1562.40
     610.0         .0     610.0        .0        .0      78.2        .0        2.5       2.2   1561.80
       .05        .00      7.81       .00      .000      .045      .000       .000   1559.00   9986.14
  .024733       425.      528.      575.         4         8         0        .00     41.70  10027.84

FLOW DISTRIBUTION FOR SECNO=       .19          CWSEL=   1561.39

STA=    9986.   10029.
  PER Q=     100.0
   AREA=      78.2
    VEL=       7.8
  DEPTH=       1.9

CCHV=     .100 CEHV=     .300
*SECNO  .305
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .305       2.50   1578.70   1578.70       .00   1579.66       .95      12.75       .00   1581.50
     610.0         .0     610.0        .0        .0      77.8        .0        3.5       2.7   1578.80
       .07        .00      7.84       .00      .000      .040      .000       .000   1576.20   9974.06
  .019601       610.      581.      530.         4         8         0        .00     41.34  10015.41

FLOW DISTRIBUTION FOR SECNO=       .31          CWSEL=   1578.70

STA=    9974.   10016.
  PER Q=     100.0
   AREA=      77.8
    VEL=       7.8
  DEPTH=       1.9

1490 NH CARD USED
*SECNO  .374
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .374       2.15   1587.45   1587.45       .00   1588.05       .60       6.76       .04   1587.10
     610.0      223.2     386.8        .0      43.1      57.6        .0        4.2       3.3   1587.70
       .08       5.18      6.71       .00      .041      .040      .000       .000   1585.30   9922.60
  .018027       340.      364.      385.        10        15         0        .00     94.50  10017.10
```



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   09AUG94      13:35:20

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=       .37          CWSEL=   1587.45

STA=    9923.    9930.    9939.    9948.    9951.    9965.    9981.   10018.
  PER Q=      3.3     15.8     14.7      1.6       .4       .9     63.4
   AREA=      5.0     14.4     13.7      2.5      2.8      4.7     57.6
    VEL=      4.0      6.7      6.5      4.0       .9      1.1      6.7
  DEPTH=       .7      1.6      1.5       .8       .2       .3      1.6

1490 NH CARD USED
*SECNO  .390

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .390       2.11   1589.71   1589.71       .00   1590.25       .55       1.60       .00   1589.50
     610.0      163.8     445.8        .5      31.7      71.9        .7        4.4       3.5   1589.50
       .09       5.17      6.20       .65      .040      .040      .070       .000   1587.60   9911.62
  .019558        85.       85.       85.         7         8         0        .00    103.91  10035.32
```

```
FLOW DISTRIBUTION FOR SECNO=       .39          CWSEL=   1589.71

STA=    9912.    9921.    9932.    9939.    9944.    9974.   10029.   10035.
  PER Q=      3.3     13.5      8.2      1.8       .1     73.1       .1
   AREA=      5.5     13.6      8.4      3.2      1.0     71.9       .7
    VEL=      3.7      6.0      5.9      3.5       .6      6.2       .7
  DEPTH=       .6      1.3      1.2       .6       .0      1.3       .1

1490 NH CARD USED
*SECNO  .480

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .480      2.27   1602.77   1602.77       .00   1603.31       .54      9.86       .00   1602.90
     610.0     236.0     374.0        .0      44.9      59.8        .0       5.6       4.6   1605.50
       .11      5.25      6.26       .00      .046      .040      .000      .000   1600.50   9910.85
   .022233      470.      475.      450.        11         8         0       .00    102.68  10017.06
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=       .48          CWSEL=   1602.77

STA=    9911.    9943.    9951.    9954.    9958.    9965.   10021.
  PER Q=      6.0     16.4     10.9      5.2       .2     61.3
   AREA=     18.2     13.1      7.2      5.3      1.2     59.8
    VEL=      2.0      7.6      9.3      6.0       .9      6.3
  DEPTH=       .6      1.6      2.2      1.2       .2      1.2

1490 NH CARD USED
*SECNO  .569
      .569      1.82   1613.82   1613.81       .00   1614.35       .54     11.04       .00   1613.10
     610.0     436.2     171.2       2.6      78.6      25.6       2.4       6.7       5.7   1613.70
       .13      5.55      6.68      1.07      .053      .040      .070      .000   1612.00   9921.78
   .027123      435.      470.      480.         6        15         0       .00    108.60  10030.38

FLOW DISTRIBUTION FOR SECNO=       .57          CWSEL=   1613.82

STA=    9922.    9947.    9954.    9965.    9986.    9994.   10016.   10030.
  PER Q=     28.3     20.1     10.7     10.3      2.1     28.1       .4
   AREA=     22.7     13.7     16.2     20.9      5.2     25.6      2.4
    VEL=      7.6      9.0      4.0      3.0      2.5      6.7      1.1
  DEPTH=       .9      1.8      1.5      1.0       .7      1.1       .2

1490 NH CARD USED
*SECNO  .683

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .683      1.89   1628.49   1628.49       .00   1629.02       .53     11.66       .00   1629.00
     610.0     331.0     242.4      36.6      54.1      41.6      17.6       8.0       7.1   1628.60
       .16      6.12      5.83      2.08      .040      .035      .070      .000   1626.60   9814.88
   .017379      510.      602.      590.         4         8         0       .00    116.25  10058.95

FLOW DISTRIBUTION FOR SECNO=       .68          CWSEL=   1628.49

STA=    9815.    9828.    9839.    9848.    9853.    9880.   10018.   10051.   10059.
  PER Q=      8.7     22.3     19.5      3.4       .4     39.7      5.7       .3
   AREA=     11.7     19.2     16.5      4.6      2.1     41.6     15.7      1.9
    VEL=      4.5      7.1      7.2      4.5      1.1      5.8      2.2      1.1
  DEPTH=       .9      1.7      1.8       .9       .1      1.1       .5       .2
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO  .790

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .790      2.06   1641.46   1641.46       .00   1642.09       .63      8.85       .03   1640.80
     610.0      22.5     400.3     187.2      12.6      55.6      40.8       9.5       8.5   1640.40
       .18      1.79      7.20      4.58      .080      .035      .042      .000   1639.40   9958.40
   .014450      550.      565.      560.         4         8         0       .00     94.78  10157.06

FLOW DISTRIBUTION FOR SECNO=       .79          CWSEL=   1641.46

STA=    9958.    9968.    9977.   10010.   10022.   10140.   10150.   10157.
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```
  PER Q=      1.2      2.5     65.6      1.5      6.2     17.9      5.1
   AREA=      5.1      7.5     55.6      6.3     10.3     17.1      7.2
    VEL=      1.5      2.0      7.2      1.5      3.7      6.4      4.3
  DEPTH=       .5       .9      1.7       .5       .1      1.7      1.0

CCHV=     .100 CEHV=     .300
*SECNO  .856
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     .856      2.33   1650.43   1650.43       .00   1651.37       .94      5.02       .09   1649.90
    610.0       1.7     608.3        .0       1.9      78.0        .0      10.2       9.0   1651.20
      .19       .92      7.80       .00      .080      .035      .000      .000   1648.10   9969.13
 .014324      340.      348.      355.         3         8         0       .00     47.39  10016.52

FLOW DISTRIBUTION FOR SECNO=       .86          CWSEL=   1650.43

STA=    9969.    9976.   10018.
  PER Q=       .3     99.7
   AREA=      1.9     78.0
    VEL=       .9      7.8
  DEPTH=       .3      1.9

CCHV=     .100 CEHV=     .030
1
   09AUG94      13:35:20                                                                          PAGE    9

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO  .961
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     .961      2.39   1661.79   1661.79       .00   1662.76       .97      8.08       .00   1663.00
    610.0        .0     610.0        .0        .0      77.1        .0      11.2       9.6   1662.90
      .21       .00      7.91       .00      .000      .035      .000      .000   1659.40   9979.36
 .015136      550.      549.      555.         4         8         0       .00     40.07  10019.42

FLOW DISTRIBUTION FOR SECNO=       .96          CWSEL=   1661.79

STA=    9979.   10020.
  PER Q=     100.0
   AREA=      77.1
    VEL=       7.9
  DEPTH=       1.9

1
   09AUG94      13:35:20                                                                          PAGE   10

                                                                          THIS RUN EXECUTED 09AUG94    13:35:21
 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

WASH F

SUMMARY PRINTOUT
```

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	SSTA	ENDST	QLOB	QROB	ELTRD
*	.000	1525.60	1526.78	610.00	5.74	.00	104.79	1.18	9933.38	10038.17	.00	.00	.00
	.095	1542.60	1544.75	610.00	5.20	17.98	111.06	2.15	9913.66	10024.73	.00	.00	.00
*	.195	1559.00	1561.39	610.00	7.81	16.63	41.70	2.39	9986.14	10027.84	.00	.00	.00
*	.305	1576.20	1578.70	610.00	7.84	17.32	41.34	2.50	9974.06	10015.41	.00	.00	.00
*	.374	1585.30	1587.45	610.00	6.71	8.75	94.50	2.15	9922.60	10017.10	223.19	.00	.00
*	.390	1587.60	1589.71	610.00	6.20	2.25	103.91	2.11	9911.62	10035.32	163.78	.46	.00
*	.480	1600.50	1602.77	610.00	6.26	13.07	102.68	2.27	9910.85	10017.06	235.98	.00	.00
	.569	1612.00	1613.82	610.00	6.68	11.04	108.60	1.82	9921.78	10030.38	436.20	2.62	.00
*	.683	1626.60	1628.49	610.00	5.83	14.68	116.25	1.89	9814.88	10058.95	330.97	36.61	.00
*	.790	1639.40	1641.46	610.00	7.20	12.97	94.78	2.06	9958.40	10157.06	22.48	187.21	.00
*	.856	1648.10	1650.43	610.00	7.80	8.97	47.39	2.33	9969.13	10016.52	1.72	.00	.00
*	.961	1659.40	1661.79	610.00	7.91	11.36	40.07	2.39	9979.36	10019.42	.00	.00	.00

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1
   09AUG94      13:35:20                                                                          PAGE   11
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SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      .000  PROFILE=  1  CRITICAL DEPTH ASSUMED

CAUTION SECNO=      .195  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .195  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .305  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .305  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .374  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .374  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .390  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .390  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .480  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .480  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .683  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .683  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .790  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .790  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .856  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .856  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .961  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .961  PROFILE=  1  MINIMUM SPECIFIC ENERGY
```

WASH I

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    09AUG94    TIME   13:31:10 *
 *****************************************
```

```
*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                  X     X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
```

1 PAGE 1

09AUG94 13:31:10

THIS RUN EXECUTED 09AUG94 13:31:10

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************
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```
T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3      WASH I                  (NATURAL)       L. CULLER - (602)244-8100
T4      JOB 15183   PR15183\ETC\WASHI\WASHI.IH2     RUN   1

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                2                           -1                                      1507

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    -1                  -1                                                                      15

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38        42         1        43        26        51         4         8        53        54
     13        15        40

QT        1      1530
NC      .07       .07      .035       0.1       0.3
X1     .000        13    9963.4   10078.5
GR   1542.2    9936.4    1535.1    9952.6    1532.8    9963.4    1527.7    9972.2    1528.5    9984.6
GR   1527.0    9994.7    1527.2   10000.0    1527.1   10014.7    1526.7   10043.7    1528.7   10057.2
GR   1533.6   10078.5    1538.7   10100.9    1538.8   10114.2

X1     .012        14    9947.0   10048.9        45       110      63
GR   1546.9    9927.9    1548.1    9931.0    1545.7    9938.5    1539.8    9947.0    1531.5    9960.7
GR   1531.0    9979.7    1531.7    9995.5    1531.3   10000.0    1532.1   10014.1    1533.0   10024.3
GR   1534.4   10035.5    1536.2   10048.9    1538.9   10063.9    1545.4   10072.6

QT        1      1350
X1     .076        15    9932.9   10027.5       360       340     338
GR   1562.0    9913.6    1560.6    9924.5    1556.8    9932.9    1551.2    9942.6    1551.0    9956.6
GR   1550.1    9974.1    1549.4    9985.8    1549.3    9998.5    1548.9   10000.0    1549.5   10006.5
GR   1550.4   10018.0    1553.4   10027.5    1559.7   10039.0    1560.3   10044.1    1560.6   10054.9

NC      .07       .07       .04       0.1       0.3
X1     .181        25    9949.2   10038.0       535       560     554
GR   1577.9   9941.86    1577.9   9941.87    1577.9   9941.88    1577.9   9941.89    1577.9    9941.9
GR   1576.5    9949.2    1574.2    9955.0    1573.4    9965.1    1573.9    9973.6    1573.8    9983.2
GR   1573.2    9989.5    1573.7   10000.0    1574.0   10014.1    1574.8   10027.0    1575.5   10038.0
GR   1580.1   10048.1    1581.0   10055.0    1581.2   10067.2    1580.6   10074.5    1581.5   10084.1
GR   1582.3   10093.1    1583.9   10109.1    1585.4   10126.3    1588.1   10141.7    1591.6   10154.8
```

1 PAGE 2

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FOREST SERVICE ROAD IS AT RIVER MILE 0.187 (LOW CROSSING, NO STRUCTURE)

```
X1     .191        16    9918.2   10044.5        45        45      53
GR   1579.4   9918.19    1579.4    9918.2    1576.9    9927.4    1576.8    9936.2    1575.7    9945.2
GR   1575.6    9961.9    1575.7    9984.4    1575.9   10000.0    1576.4   10017.9    1577.2   10029.6
GR   1581.1   10044.5    1582.2   10061.5    1584.3   10082.7    1586.9   10101.9    1589.1   10118.9
GR   1589.1   10119.4       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0

NH        5       .07    9884.3       .04   10022.5       .07   10071.2       .04   10104.9       .07
NH   10117.
X1     .270        22    9884.3   10022.5       390       420     417
GR   1600.3    9833.0    1597.5    9850.0    1594.5    9864.5    1594.8    9872.5    1592.4    9884.3
GR   1591.9    9901.7    1591.9    9925.5    1592.1    9954.5    1591.3    9964.5    1591.7    9979.0
GR   1591.4   10000.0    1591.7   10013.1    1592.3   10022.5    1592.9   10030.3    1593.2   10046.8
GR   1593.4   10057.9    1593.7   10071.2    1592.9   10078.0    1591.8   10085.2    1592.1   10097.9
GR   1597.0   10104.9    1596.9   10117.0
```

```
NC      .07       .07       .04       0.1       0.3
X1     .363        20    9912.8   10044.9       515       445       491
GR   1615.7   9901.18    1615.7   9901.19    1615.7    9901.2    1608.1    9912.8    1608.1    9929.2
GR   1608.3    9940.8    1608.7    9949.2    1608.7    9966.3    1607.7    9985.1    1607.5    9994.3
GR   1607.5   10000.0    1607.9   10015.9    1607.7   10026.3    1607.8   10039.8    1608.5   10044.9
GR   1608.9   10059.8    1609.2   10082.2    1609.4   10095.3    1611.0   10110.5    1612.0   10121.3

NH        5       .07    9958.7       .04   10045.1       .07   10070.4       .04   10116.4       .07
NH    10146.
X1     .451        22    9958.7   10045.1       505       440       465
GR   1629.5    9900.9    1629.5    9900.9    1629.5    9908.7    1627.4    9926.2    1625.5    9943.8
GR   1622.6    9958.7    1621.6    9974.2    1622.1    9993.9    1621.9   10000.0    1622.1   10017.5
GR   1621.9   10027.9    1622.1   10036.1    1622.4   10045.1    1623.7   10060.8    1622.9   10070.4
GR   1622.1   10082.1    1622.7   10091.5    1622.4   10103.1    1623.1   10116.4    1623.2   10132.7
GR   1629.2   10137.1    1629.9   10146.0

NC      .07       .07       .04       0.1       0.3
X1     .541        16    9969.7   10036.7       415       540       475
GR   1642.5    9911.0    1642.2    9927.6    1642.1    9943.5    1639.9    9957.6    1637.7    9969.7
GR   1636.1    9977.6    1636.0    9999.2    1635.9   10000.0    1636.2   10022.2    1637.1   10036.7
GR   1636.7   10062.6    1640.5   10080.0    1643.0   10097.0    1645.1   10116.8    1646.3   10136.0
GR   1646.9   10144.3       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0

NH        3       .07    9942.9       .04   10021.1       .07   10114.6
X1     .625        18    9942.9   10021.1       445       445       444
GR   1658.1   9907.99    1658.1    9908.0    1657.5    9915.4    1653.9    9924.6    1648.4    9942.9
GR   1648.3    9958.4    1649.0    9969.4    1648.6    9988.2    1648.1    9999.5    1648.0   10000.0
GR   1648.1   10010.0    1649.3   10021.1    1650.7   10033.9    1652.0   10046.6    1652.0   10063.5
GR   1652.8   10085.4    1654.7   10103.3    1655.3   10114.6
```

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1                                                                                                                    PAGE    3
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF 1
0

 CCHV=     .100 CEHV=     .300
 *SECNO  .000
 3720 CRITICAL DEPTH ASSUMED
      .000       2.81    1529.51    1529.51    1507.00    1530.55       1.04        .00        .00    1532.80
    1530.0         .0     1530.0         .0         .0      186.9         .0         .0         .0    1533.60
       .00        .00       8.18        .00       .000       .035       .000       .000    1526.70    9969.08
   .014543         0.         0.         0.          0         22          0        .00      91.63   10060.71

 FLOW DISTRIBUTION FOR SECNO=       .00          CWSEL=   1529.51

 STA=    9969.   10079.
   PER Q=     100.0
    AREA=     186.9
     VEL=       8.2
   DEPTH=       2.0

 *SECNO  .012
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      .012       3.21    1534.21    1534.21        .00    1535.36       1.15        .89        .03    1539.80
    1530.0         .0     1530.0         .0         .0      177.8         .0         .3         .1    1536.20
       .00        .00       8.60        .00       .000       .035       .000       .000    1531.00    9956.23
   .013840        45.        63.       110.         20          8          0        .00      77.75   10033.98

 FLOW DISTRIBUTION FOR SECNO=       .01          CWSEL=   1534.21

 STA=    9956.   10049.
   PER Q=     100.0
    AREA=     177.8
     VEL=       8.6
   DEPTH=       2.3

 *SECNO  .076
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
1                                                                                                                    PAGE    4
   09AUG94        13:31:10

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 3720 CRITICAL DEPTH ASSUMED
      .076       3.31    1552.21    1552.21        .00    1553.24       1.03       4.82        .01    1556.80
    1350.0         .0     1350.0         .0         .0      165.7         .0        1.6         .7    1553.40
       .01        .00       8.15        .00       .000       .035       .000       .000    1548.90    9940.86
   .014775       360.       338.       340.         20          8          0        .00      82.87   10023.72

 FLOW DISTRIBUTION FOR SECNO=       .08          CWSEL=   1552.21
```

```
STA=    9941.   10028.
  PER Q=     100.0
   AREA=     165.7
    VEL=       8.1
  DEPTH=       2.0

CCHV=     .100 CEHV=     .300
*SECNO  .181
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .181      2.80   1576.00   1576.00       .00   1576.98       .99      9.29       .00   1576.50
    1350.0        .0    1349.7        .3        .0     169.4        .3       3.7       1.8   1575.50
       .03       .00      7.97      1.09      .000      .040      .070      .000   1573.20   9950.47
   .019207      535.      554.      560.        20        15         0       .00     88.62  10039.09

FLOW DISTRIBUTION FOR SECNO=       .18          CWSEL=   1576.00

STA=    9950.   10038.   10039.
  PER Q=     100.0        .0
   AREA=     169.4        .3
    VEL=       8.0       1.1
  DEPTH=       1.9        .2

*SECNO  .191
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .191      2.20   1577.80   1577.80       .00   1578.66       .86      1.04       .01   1579.40
    1350.0        .0    1350.0        .0        .0     181.6        .0       3.9       2.0   1581.10
       .03       .00      7.43       .00      .000      .040      .000      .000   1575.60   9924.07
   .020048       45.       53.       45.        20        15         0       .00    107.83  10031.91
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=       .19          CWSEL=   1577.80

STA=    9924.   10045.
  PER Q=     100.0
   AREA=     181.6
    VEL=       7.4
  DEPTH=       1.7

1490 NH CARD USED
*SECNO  .270

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .270      1.87   1593.17   1593.17       .00   1593.79       .62      8.41       .02   1592.40
    1350.0       2.3    1212.8     134.8       1.5     187.3      29.1       5.9       3.4   1592.30
       .05      1.58      6.48      4.64      .070      .040      .042      .000   1591.30   9880.51
   .020276      390.      417.      420.         3        15         0       .00    188.48  10099.43

FLOW DISTRIBUTION FOR SECNO=       .27          CWSEL=   1593.17

STA=    9881.    9884.   10023.   10098.   10099.
  PER Q=        .2      89.8      9.8       .2
   AREA=       1.5     187.3     28.2       .8
    VEL=       1.6       6.5      4.7      3.1
  DEPTH=        .4       1.4       .4       .5

CCHV=     .100 CEHV=     .300
*SECNO  .363
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .363      2.04   1609.54   1609.54       .00   1610.19       .65      9.54       .01   1608.10
    1350.0       3.3    1291.3      55.5       1.6     195.1      26.6       8.3       5.4   1608.50
       .07      2.08      6.62      2.09      .070      .040      .070      .000   1607.50   9910.61
   .018876      515.      491.      445.         4         8         0       .00    185.99  10096.60

FLOW DISTRIBUTION FOR SECNO=       .36          CWSEL=   1609.54
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

STA=    9911.    9913.   10045.   10060.   10082.   10095.   10097.
  PER Q=        .2      95.6      2.4       1.5       .3       .0
   AREA=       1.6     195.1     12.5      10.9      3.1       .1
    VEL=       2.1       6.6      2.6       1.8      1.1       .0
  DEPTH=        .7       1.5       .8        .5       .2       .1
```

```
1490 NH CARD USED
*SECNO  .451

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     .451       2.10   1623.70   1623.70       .00   1624.34       .64      8.41       .00   1622.60
    1350.0       5.8    1018.9     325.3       3.1     145.9      75.2      10.7       7.4   1622.40
       .09      1.86      6.98      4.33      .070      .040      .044      .000   1621.60   9953.06
   .017589       505.      465.      440.         4         8         0       .00    179.97  10133.07

FLOW DISTRIBUTION FOR SECNO=       .45          CWSEL=   1623.70

STA=    9953.    9959.   10045.   10082.   10092.   10103.   10116.   10133.
  PER Q=        .4     75.5      7.8      5.3      5.3      4.4      1.2
   AREA=       3.1    145.9     28.0     12.2     13.3     12.6      9.0
    VEL=       1.9      7.0      3.7      5.9      5.4      4.8      1.9
  DEPTH=        .5      1.7       .8      1.3      1.1       .9       .5

CCHV=     .100 CEHV=     .300
*SECNO  .541
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     .541       2.52   1638.42   1638.42       .00   1639.37       .95      8.66       .09   1637.70
    1350.0       2.0    1183.1     164.9       1.4     143.2      46.0      13.0       9.0   1637.10
       .11      1.42      8.26      3.58      .070      .040      .070      .000   1635.90   9965.76
   .018026       415.      475.      540.         4        11         0       .00    104.70  10070.46

FLOW DISTRIBUTION FOR SECNO=       .54          CWSEL=   1638.42

STA=    9966.    9970.   10037.   10063.   10070.
  PER Q=        .1     87.6     10.9      1.3
   AREA=       1.4    143.2     39.3      6.7
    VEL=       1.4      8.3      3.8      2.5
  DEPTH=        .4      2.1      1.5       .9
```



```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO  .625
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     .625       2.58   1650.58   1650.58       .00   1651.57       .99      8.00       .01   1648.40
    1350.0       23.2    1310.9      15.8       7.9     162.0       7.5      14.9      10.0   1649.30
       .13      2.93      8.09      2.11      .070      .040      .070      .000   1648.00   9935.64
   .017986       445.      444.      445.        10         8         0       .00     97.18  10032.82

FLOW DISTRIBUTION FOR SECNO=       .63          CWSEL=   1650.58

STA=    9936.    9943.   10021.   10033.
  PER Q=        1.7     97.1      1.2
   AREA=       7.9    162.0      7.5
    VEL=       2.9      8.1      2.1
  DEPTH=        1.1      2.1       .6
```



```
                                                                    THIS RUN EXECUTED 09AUG94    13:31:11

 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************

 NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

 WASH I

 SUMMARY PRINTOUT
```

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	SSTA	ENDST	QLOB	QROB	ELTRD
*	.000	1526.70	1529.51	1530.00	8.18	.00	91.63	2.81	9969.08	10060.71	.00	.00	.00
*	.012	1531.00	1534.21	1530.00	8.60	4.70	77.75	3.21	9956.23	10033.98	.00	.00	.00
*	.076	1548.90	1552.21	1350.00	8.15	18.00	82.87	3.31	9940.86	10023.72	.00	.00	.00
*	.181	1573.20	1576.00	1350.00	7.97	23.79	88.62	2.80	9950.47	10039.09	.00	.29	.00
*	.191	1575.60	1577.80	1350.00	7.43	1.81	107.83	2.20	9924.07	10031.91	.00	.00	.00
*	.270	1591.30	1593.17	1350.00	6.48	15.37	188.48	1.87	9880.51	10099.43	2.31	134.84	.00

*	.363	1607.50	1609.54	1350.00	6.62	16.37	185.99	2.04	9910.61	10096.60	3.27	55.46	.00
*	.451	1621.60	1623.70	1350.00	6.98	14.16	179.97	2.10	9953.06	10133.07	5.78	325.31	.00
*	.541	1635.90	1638.42	1350.00	8.26	14.72	104.70	2.52	9965.76	10070.46	2.01	164.86	.00
*	.625	1648.00	1650.58	1350.00	8.09	12.17	97.18	2.58	9935.64	10032.82	23.22	15.84	.00

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      .000  PROFILE=  1  CRITICAL DEPTH ASSUMED

CAUTION SECNO=      .012  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .012  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .012  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=      .076  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .076  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .076  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=      .181  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .181  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .181  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=      .191  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .191  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .191  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=      .270  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .270  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .363  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .363  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .451  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .451  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .541  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .541  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .625  PROFILE=  1  CRITICAL DEPTH ASSUMED
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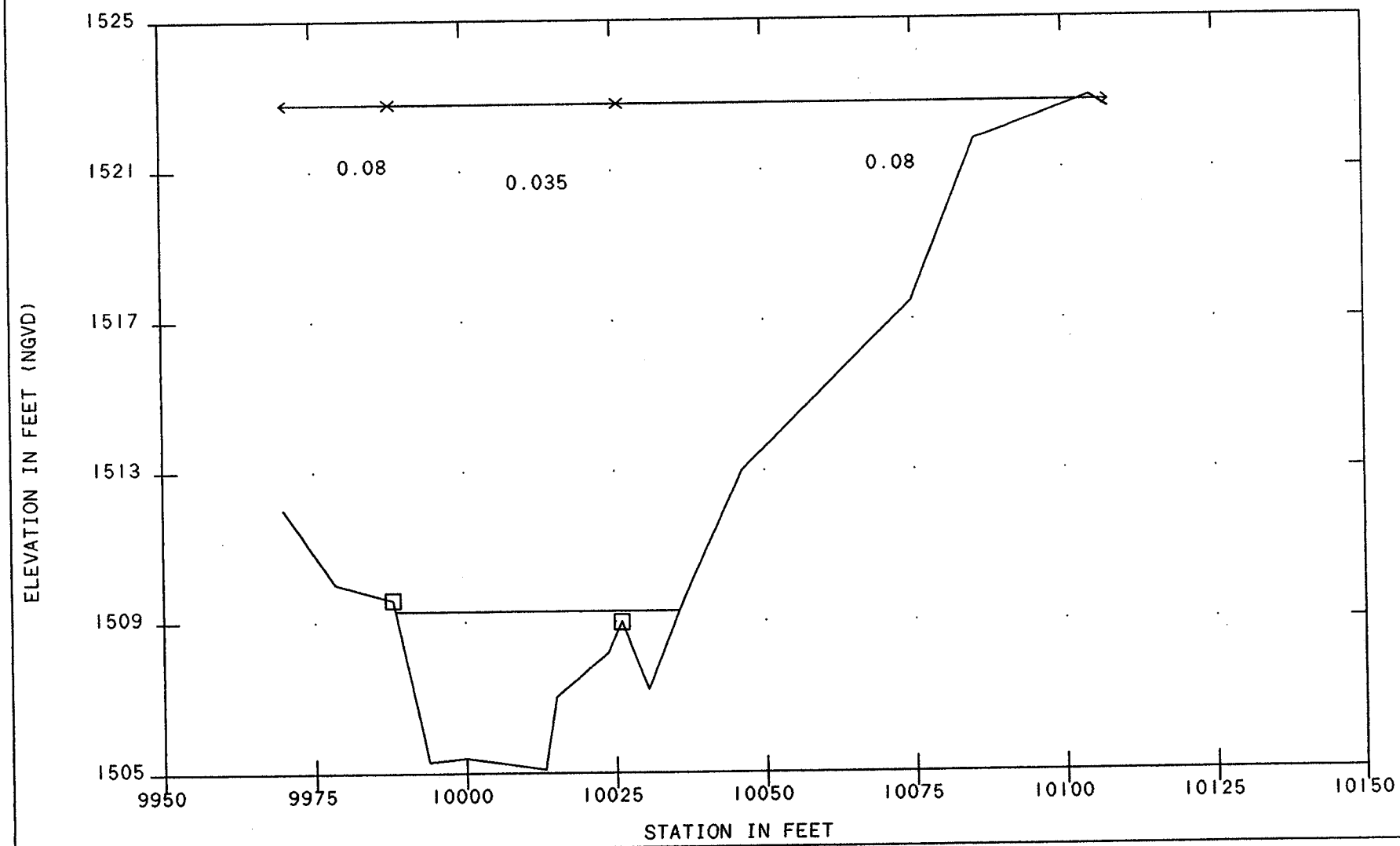
SECTION 3: CROSS SECTIONS

WASH A



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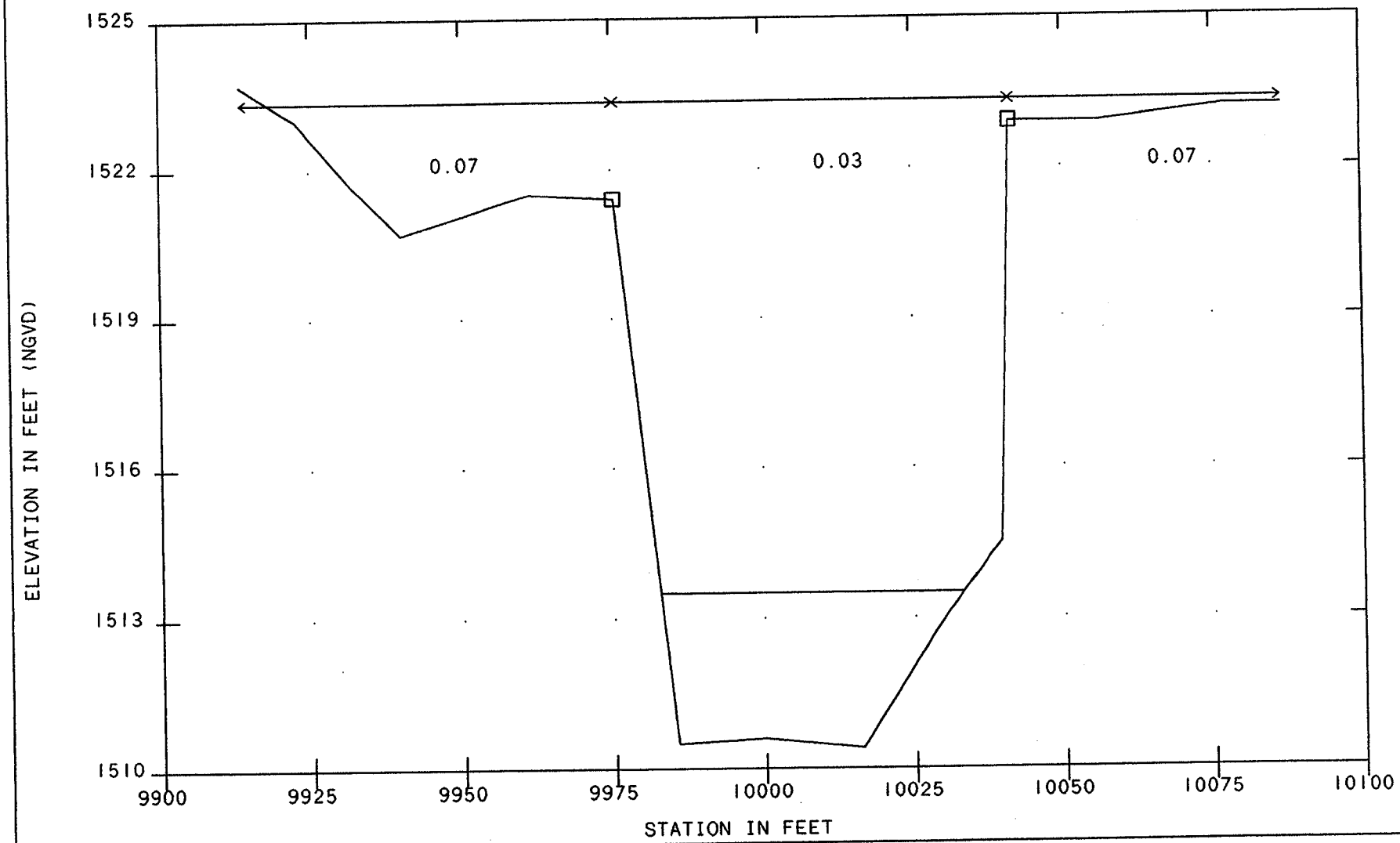
WASH A AUGUST 19, 1994



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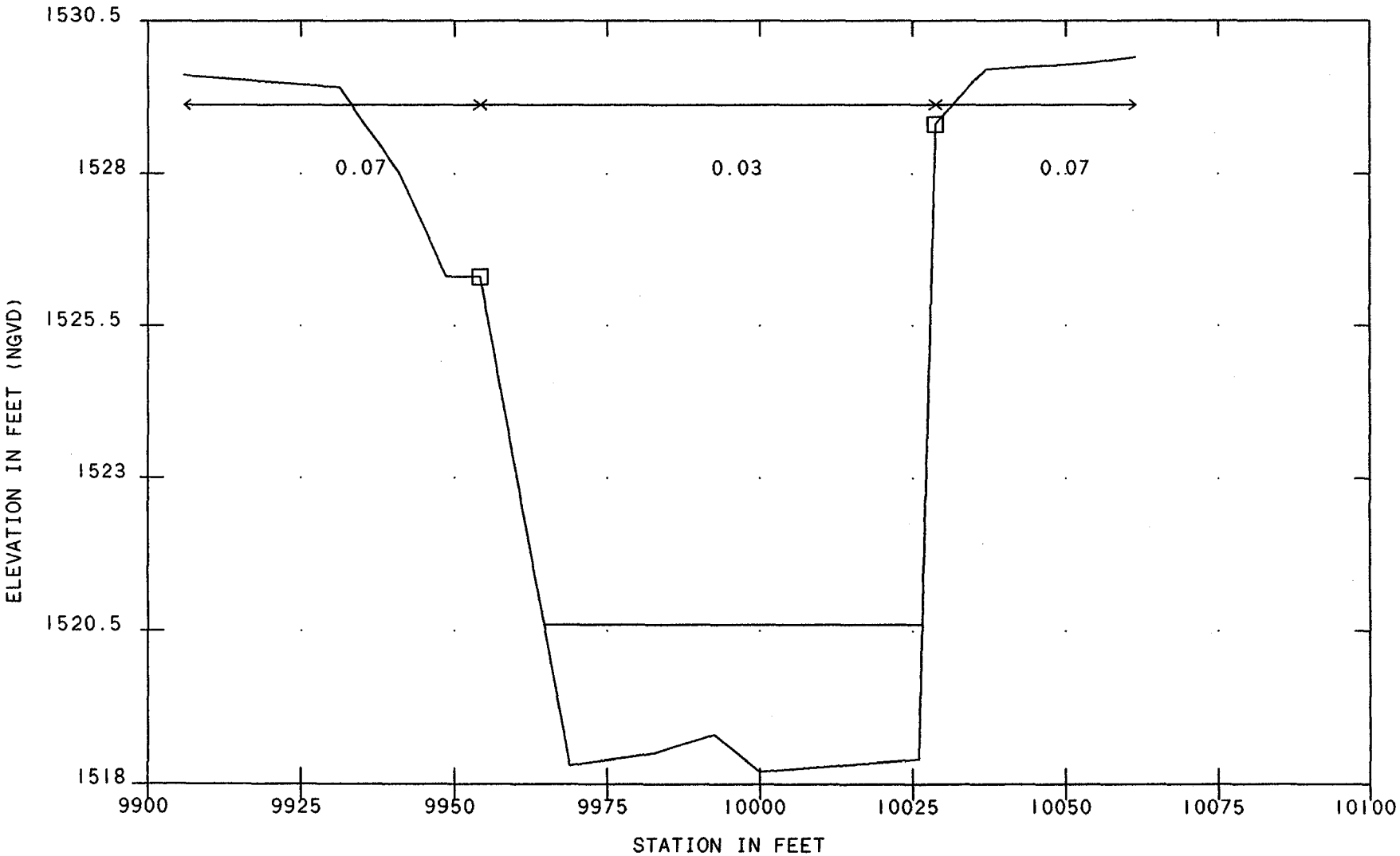

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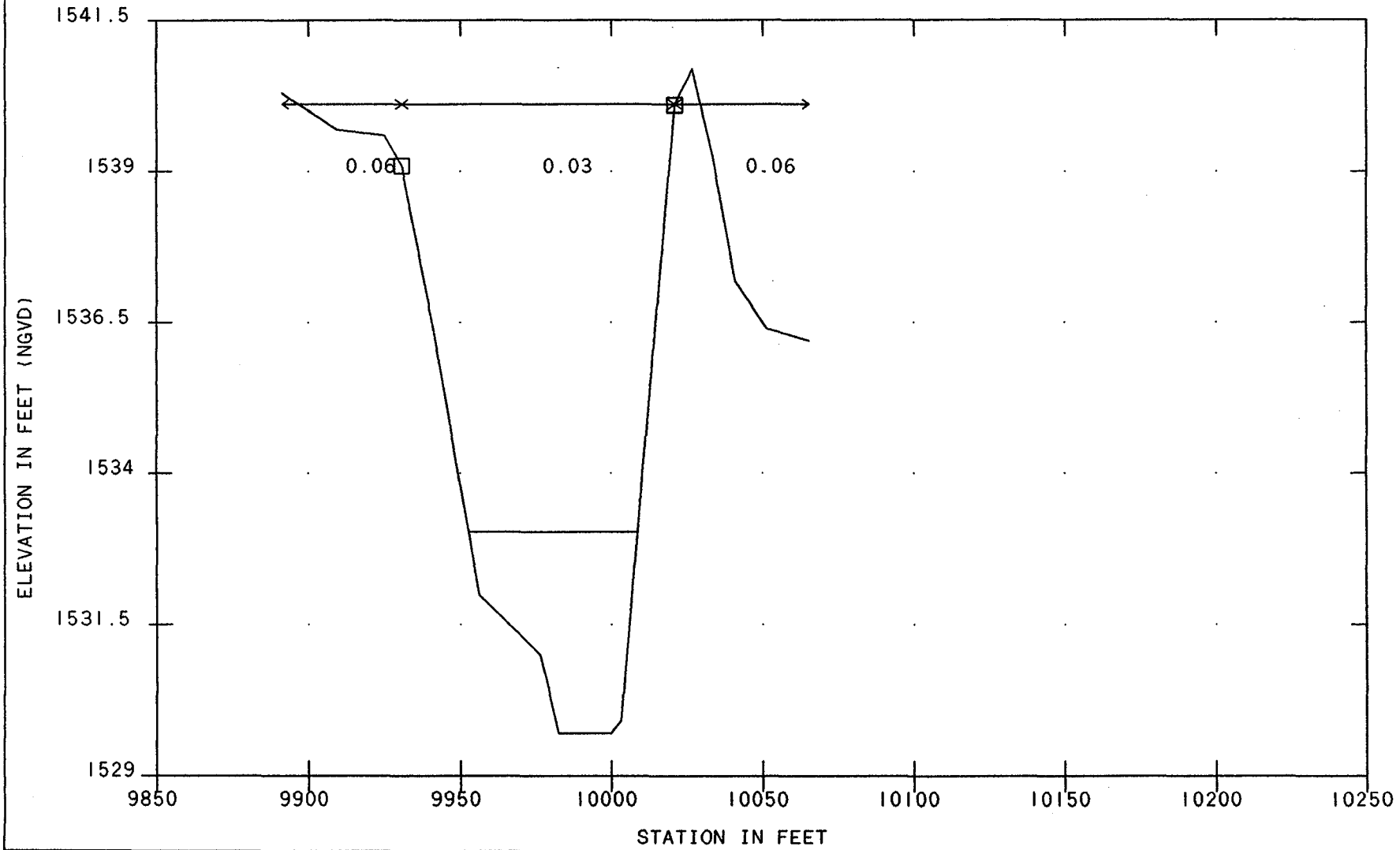

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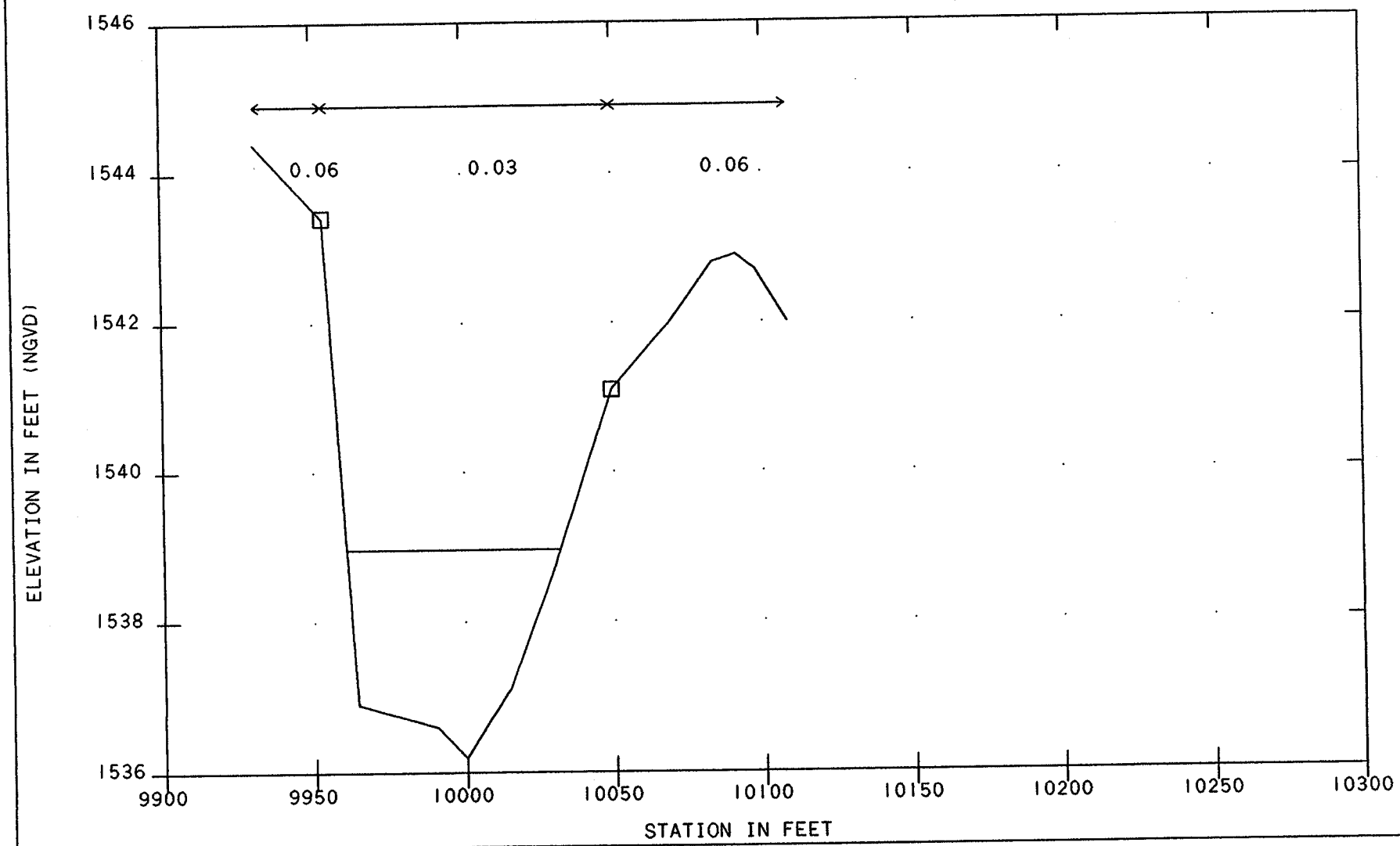
WASH A AUGUST 19, 1994



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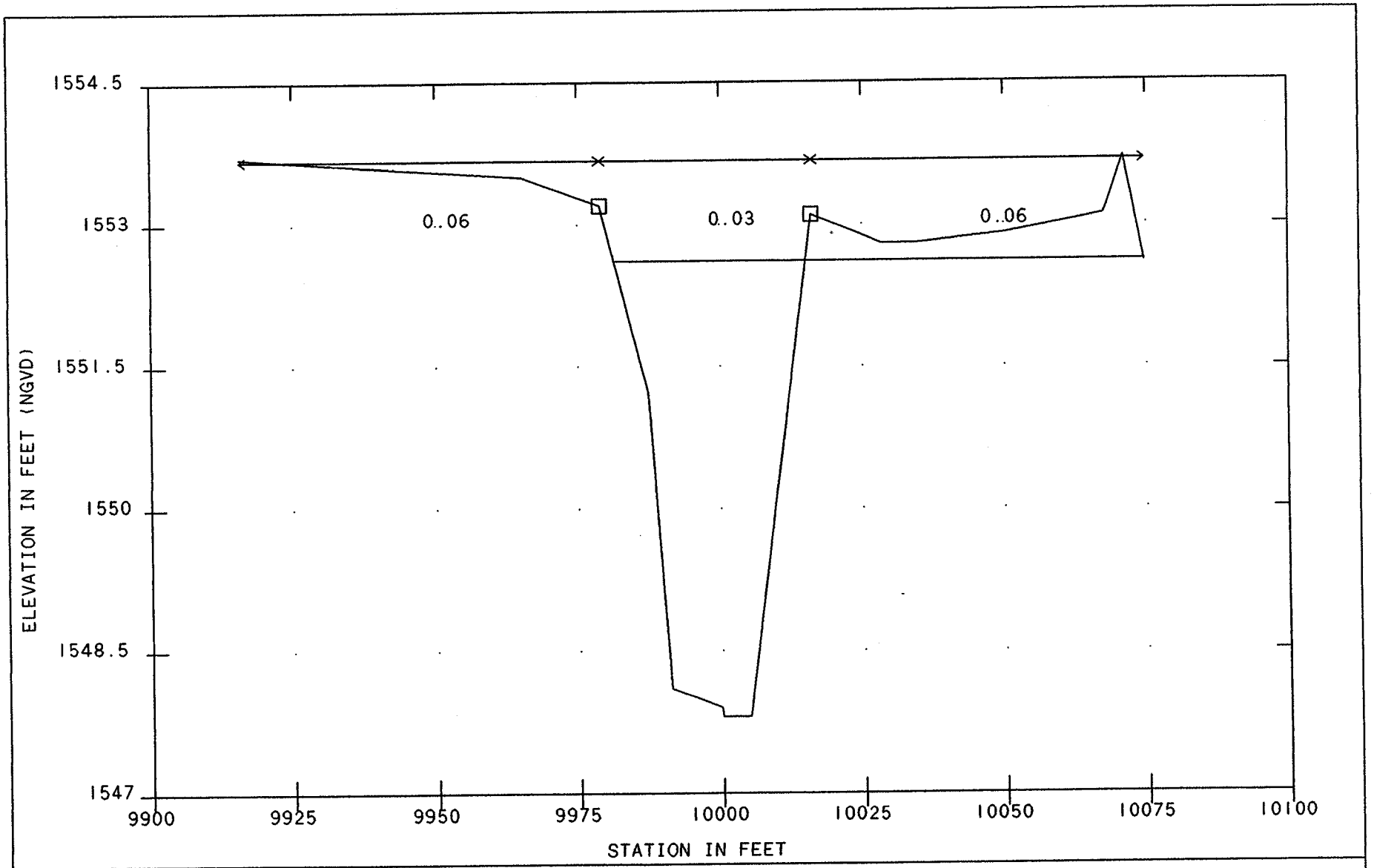

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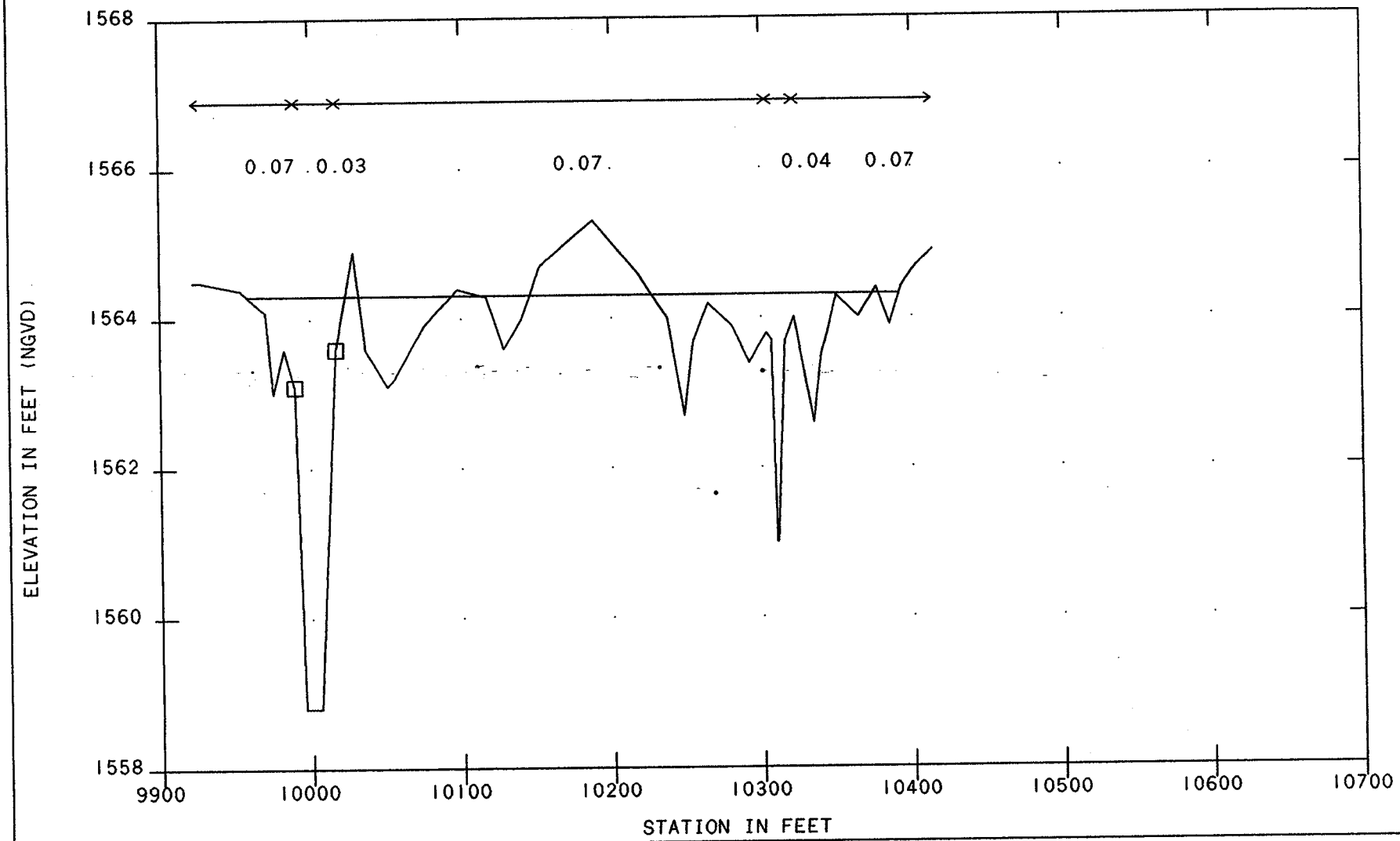

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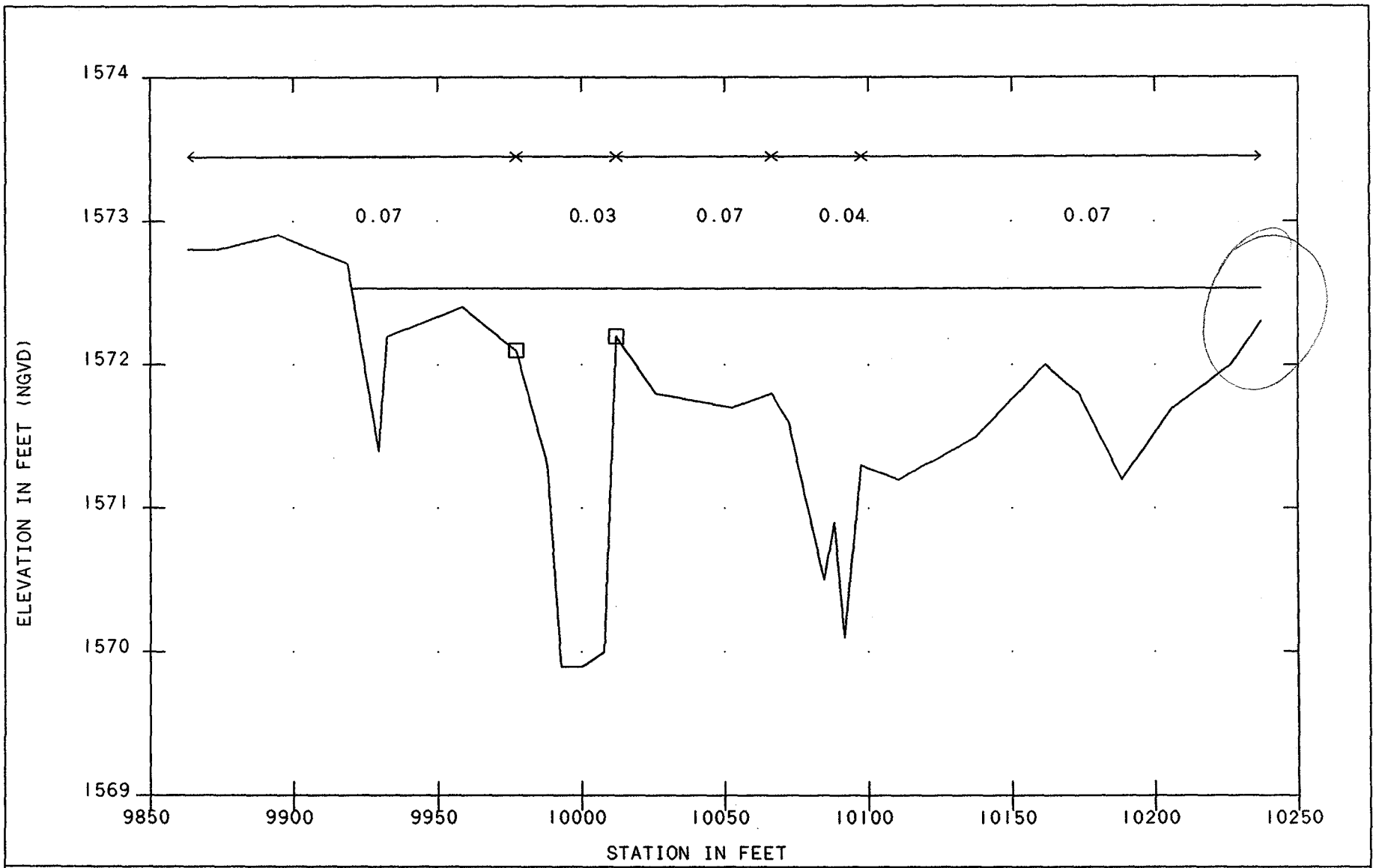

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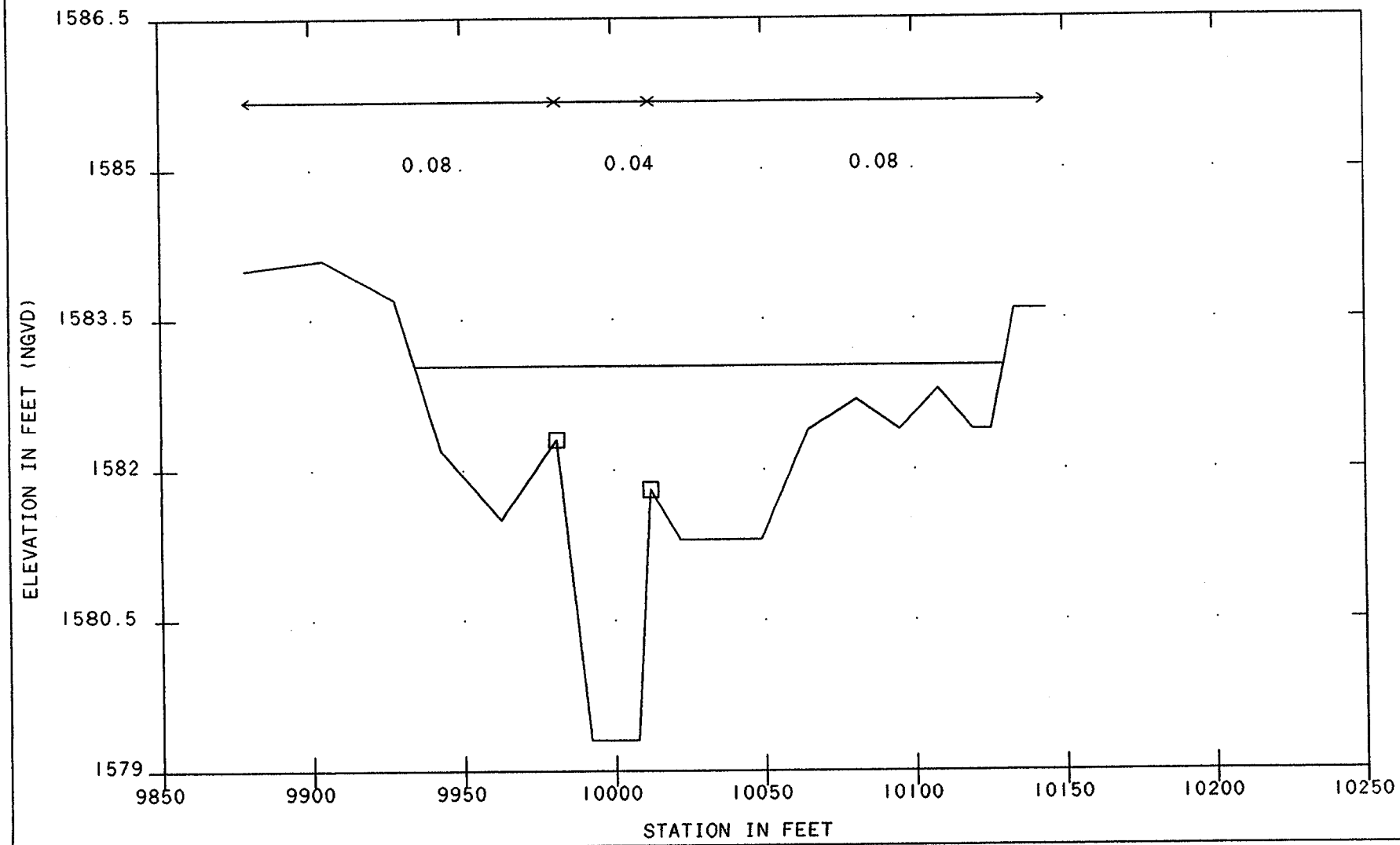

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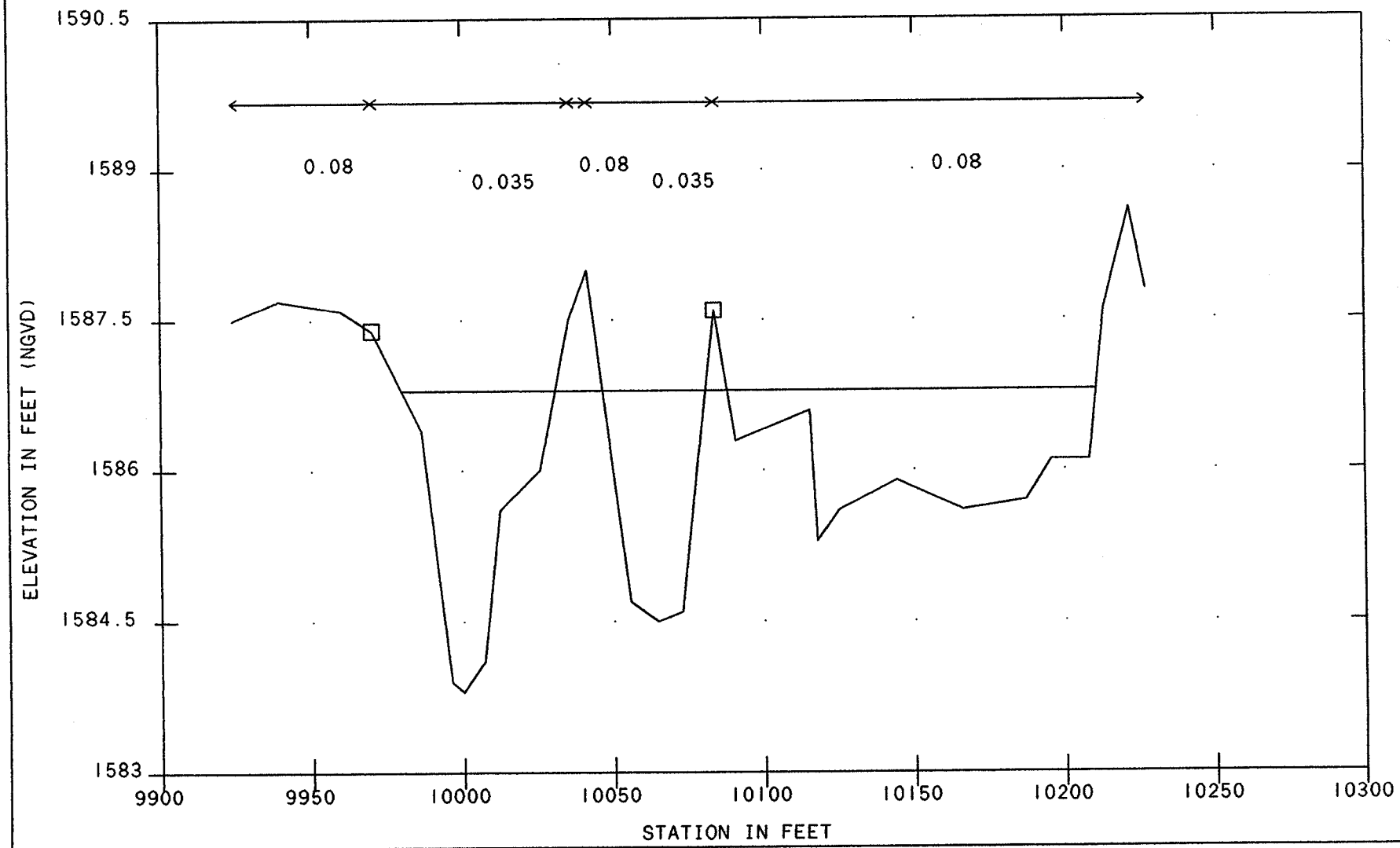

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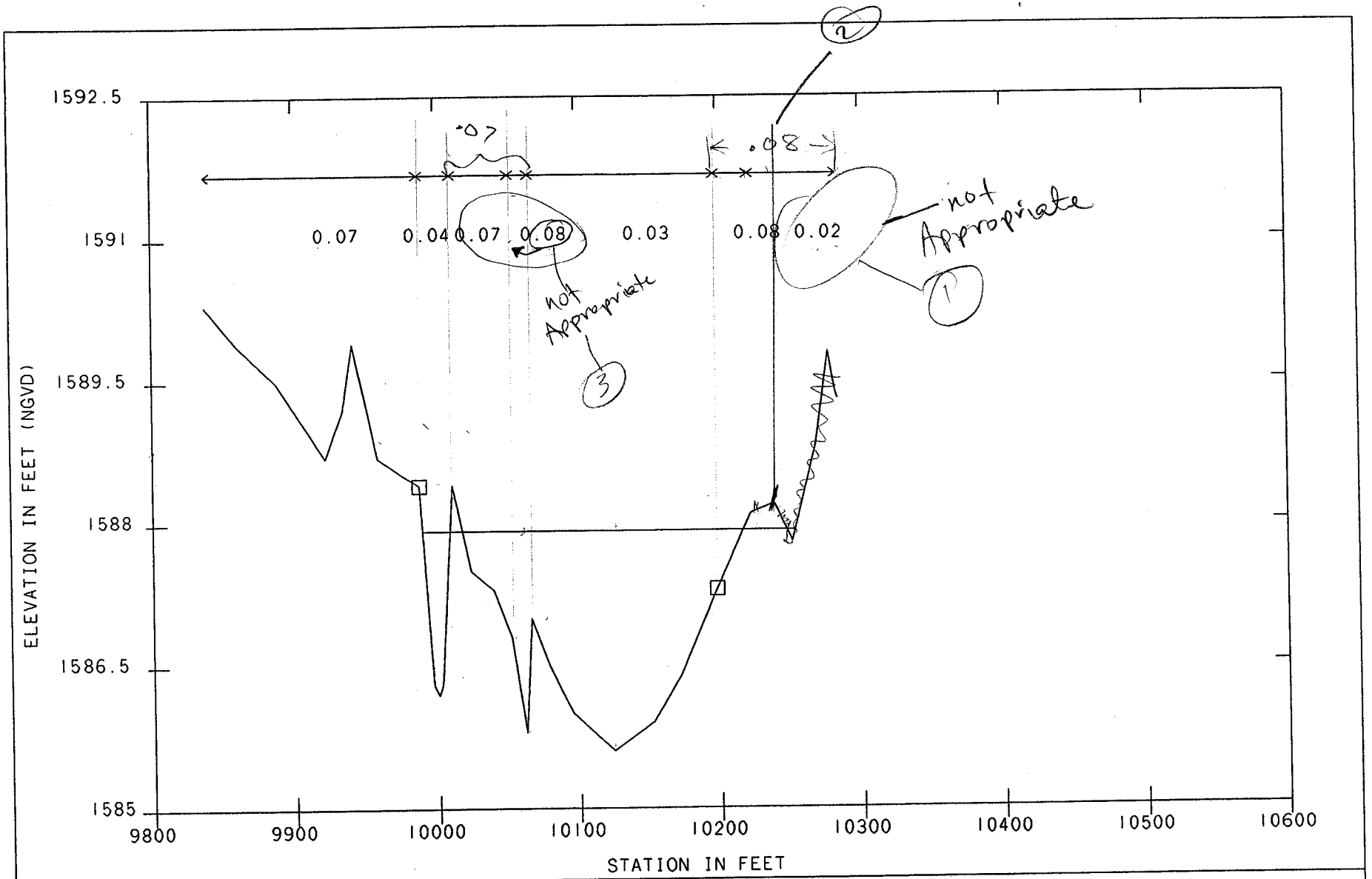

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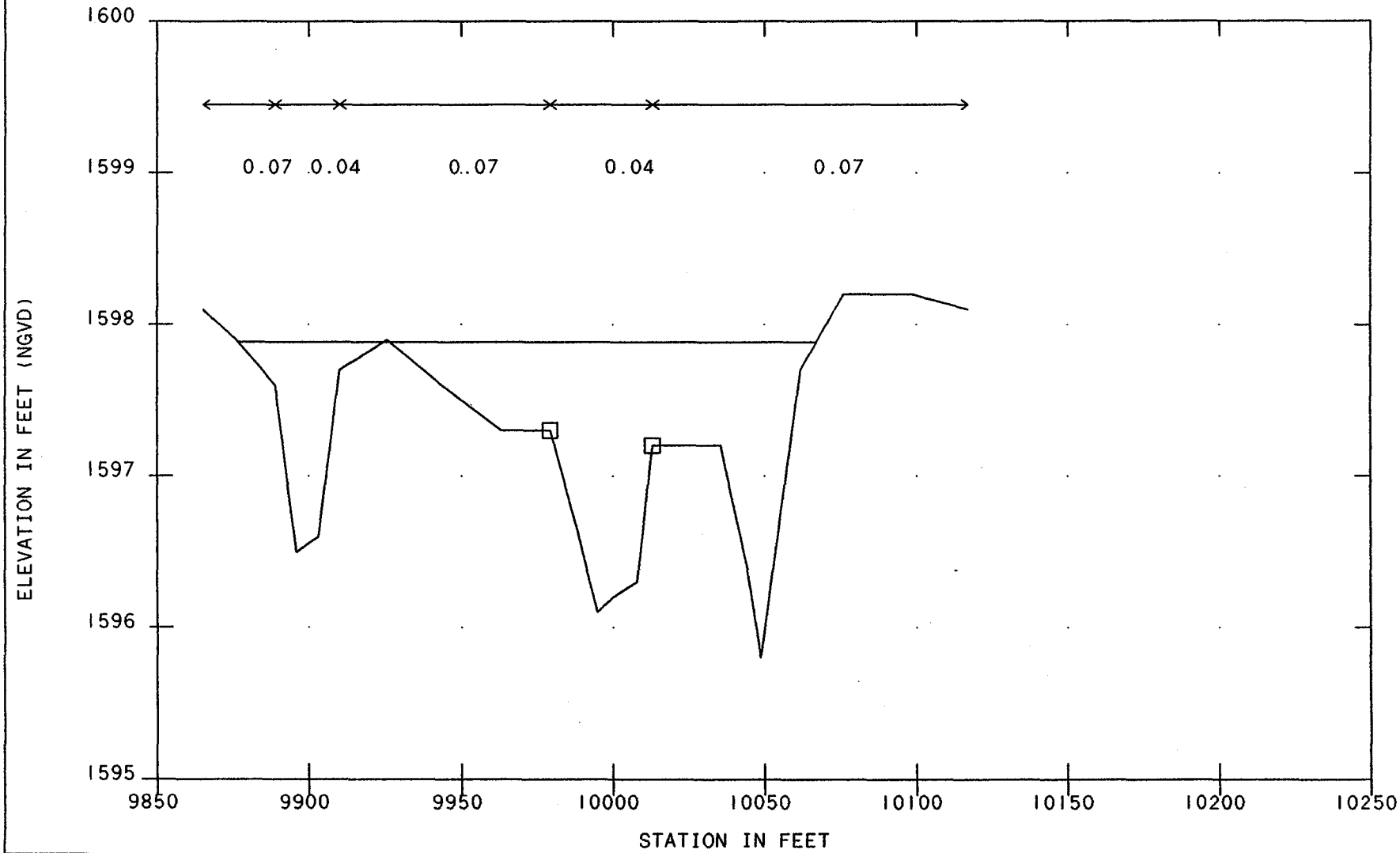

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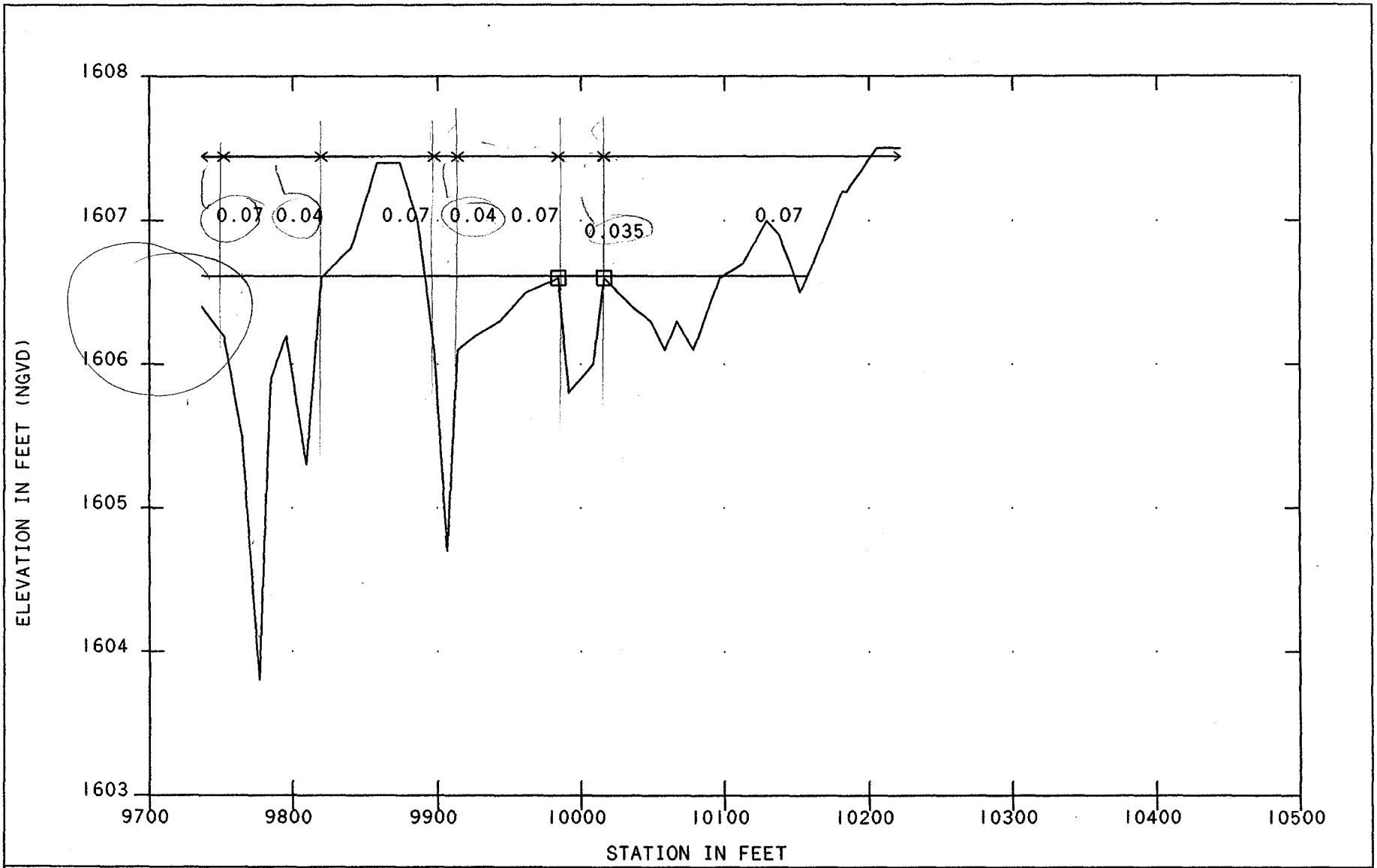

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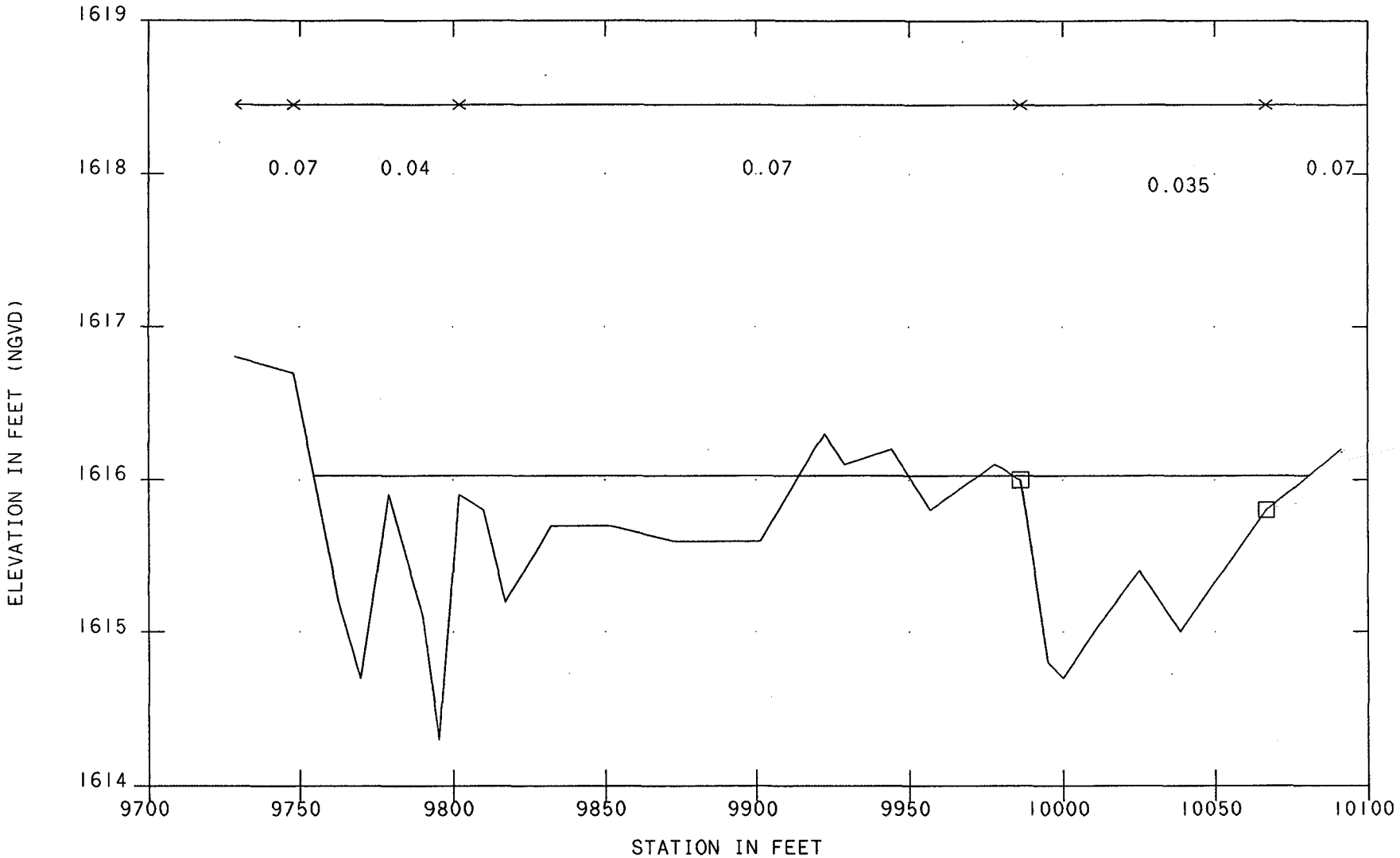
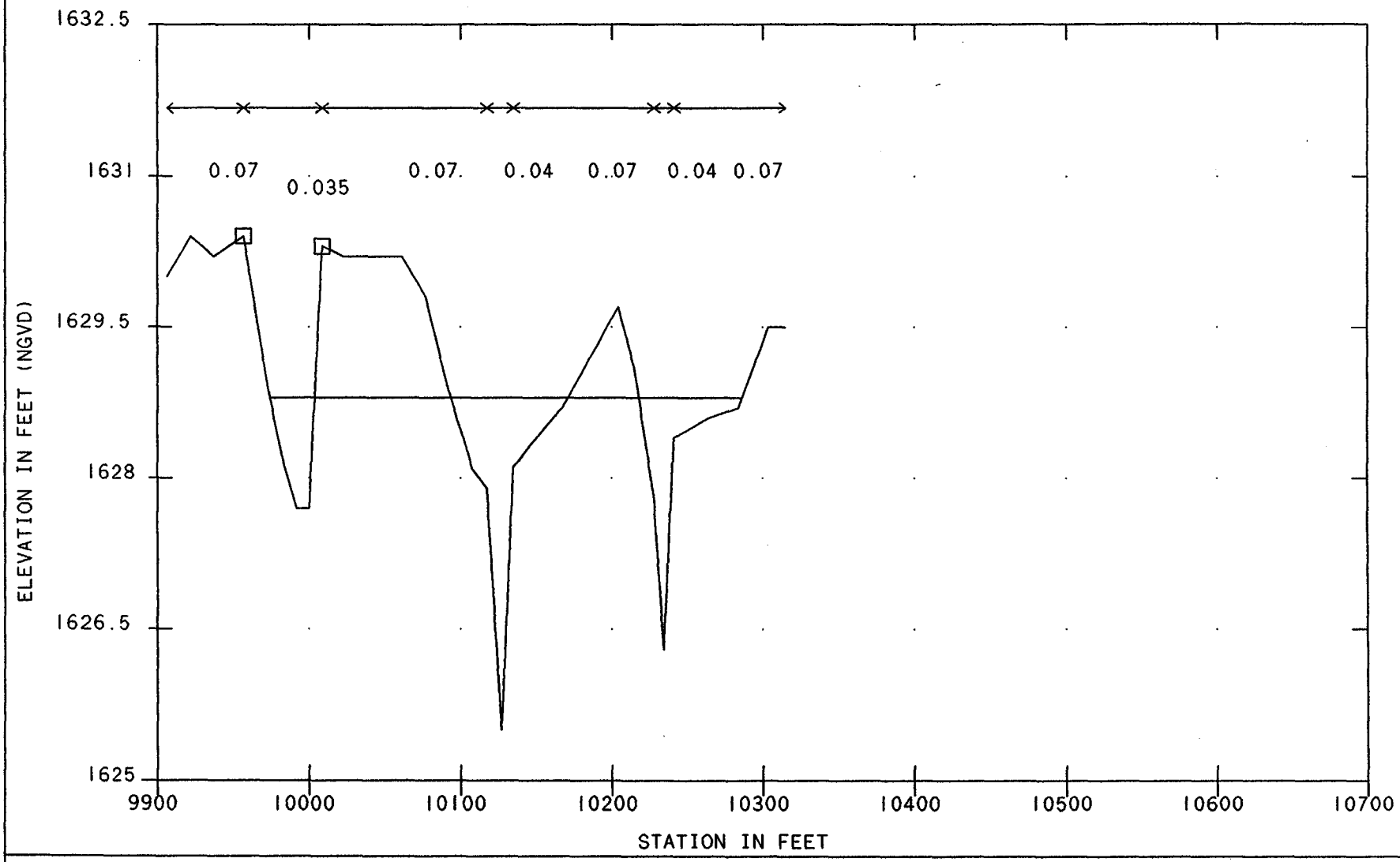


SECTION : 0.990

WASH A AUGUST 19, 1994



SECTION : 1.117

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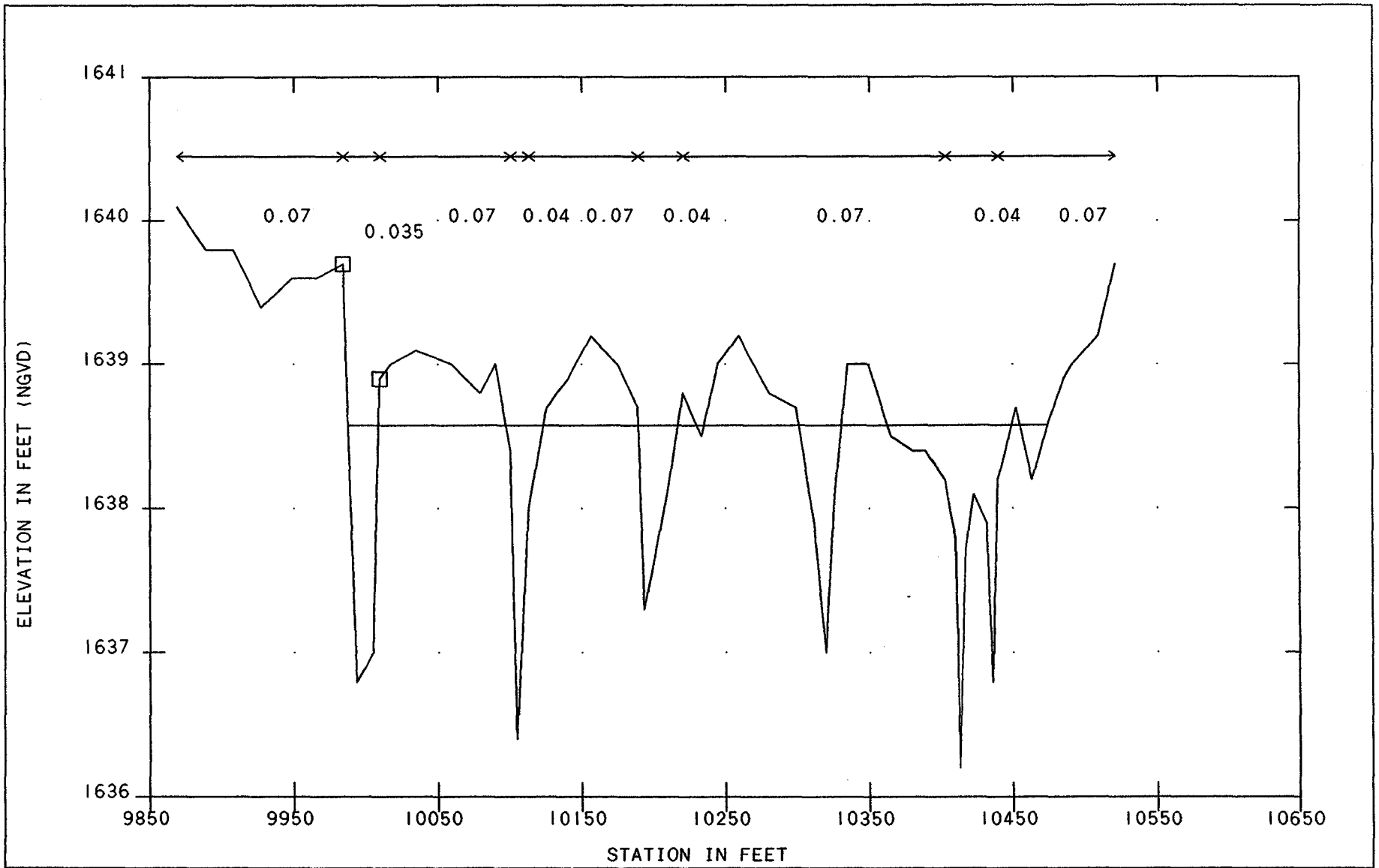

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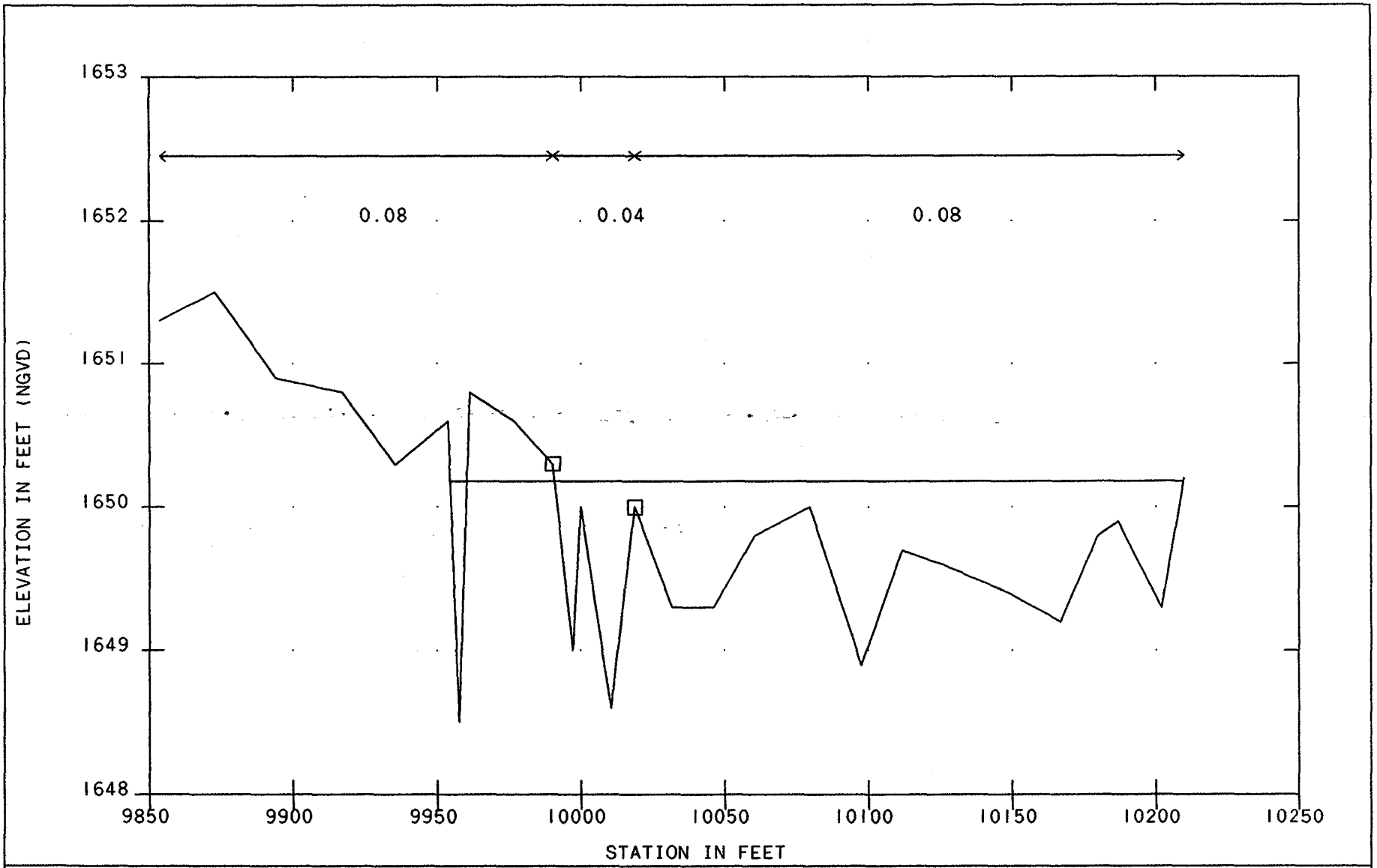

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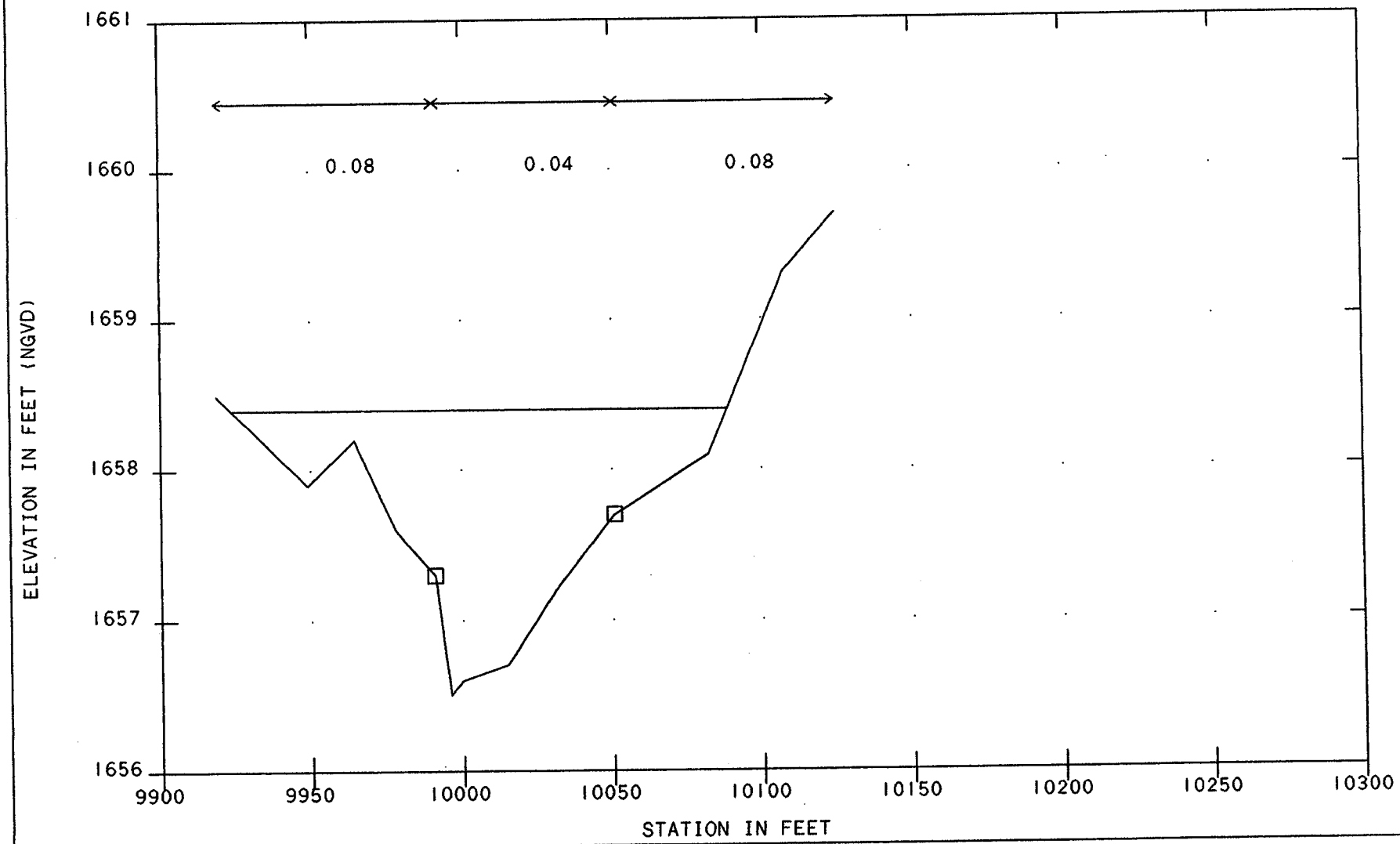

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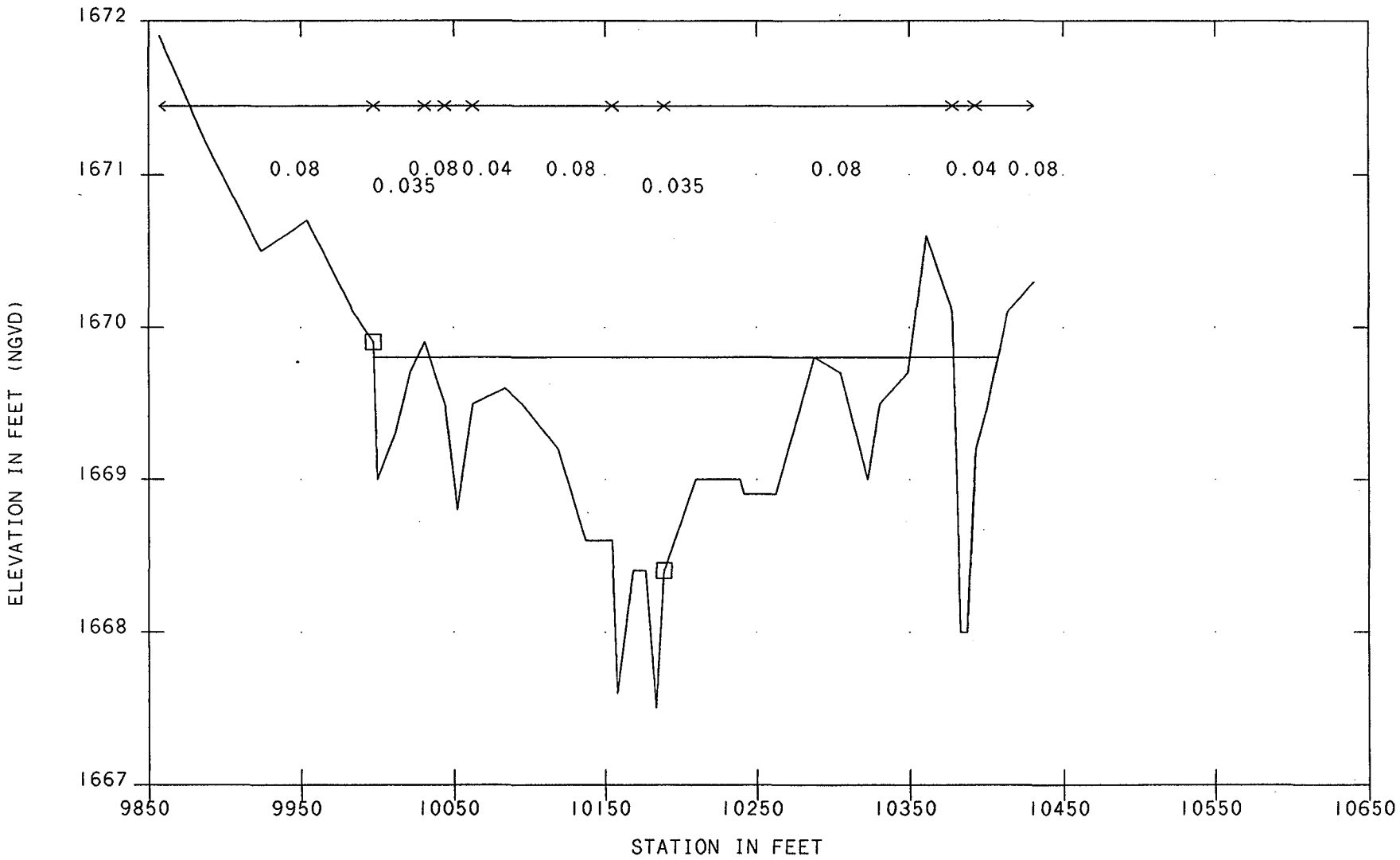

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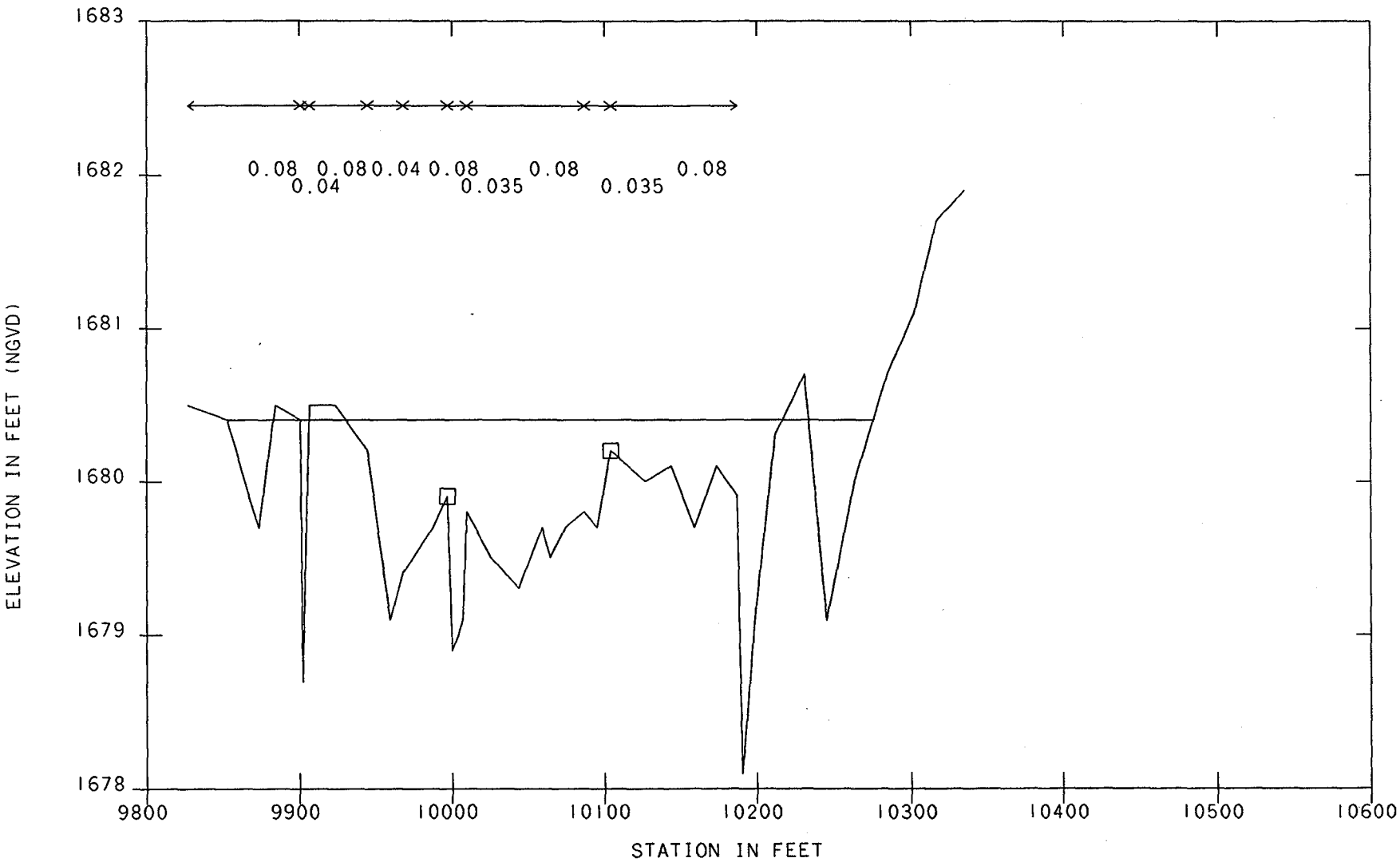

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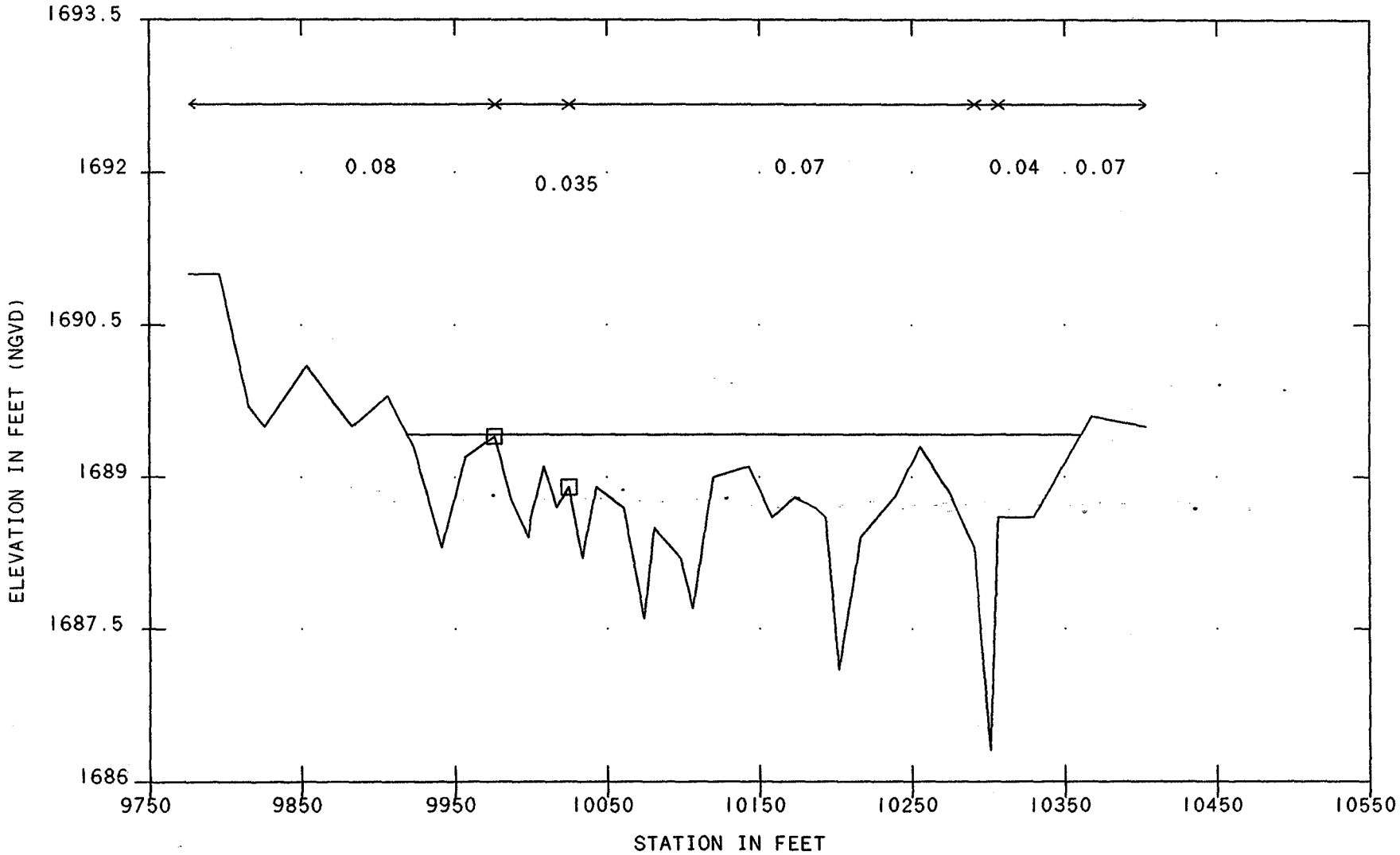

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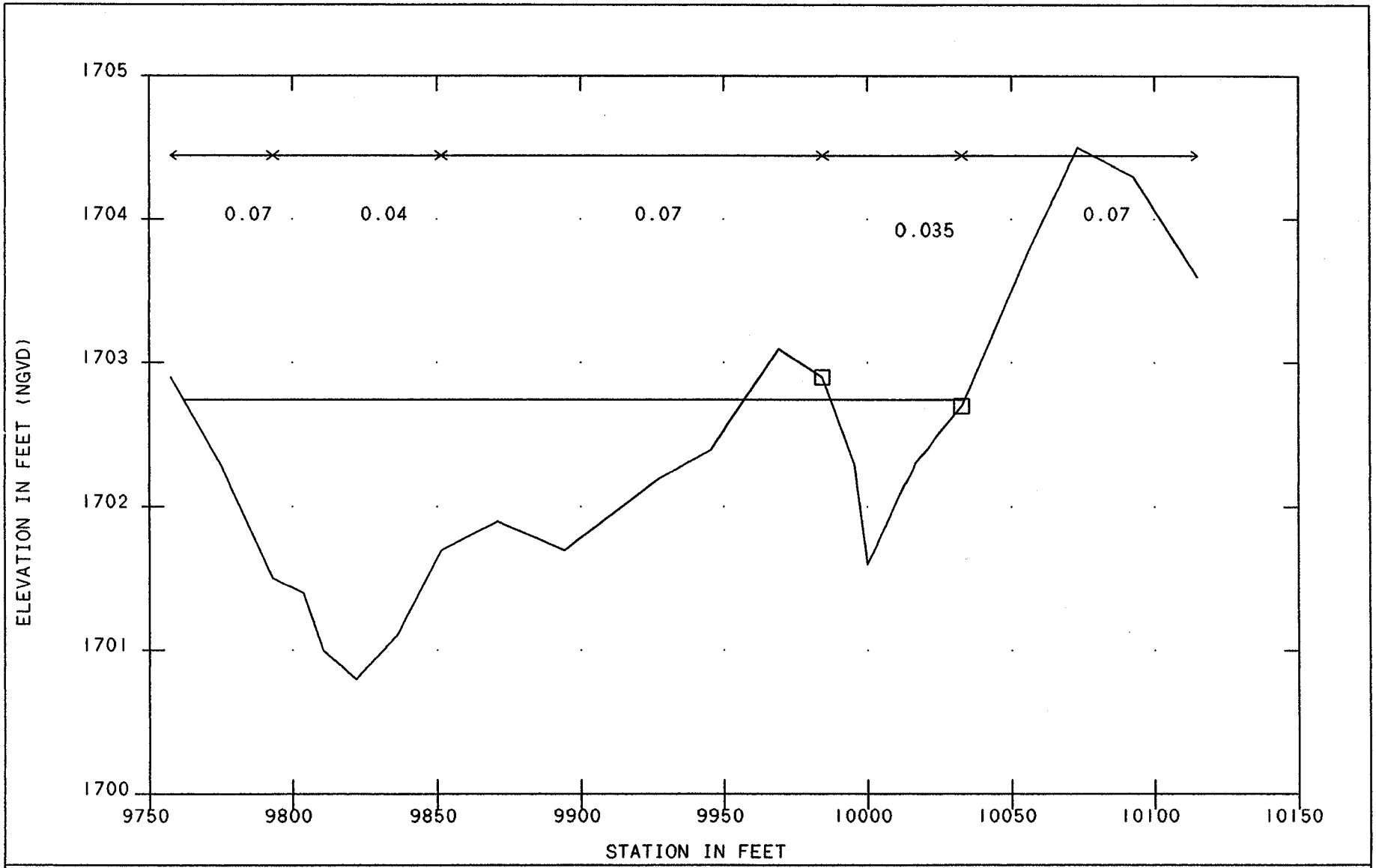

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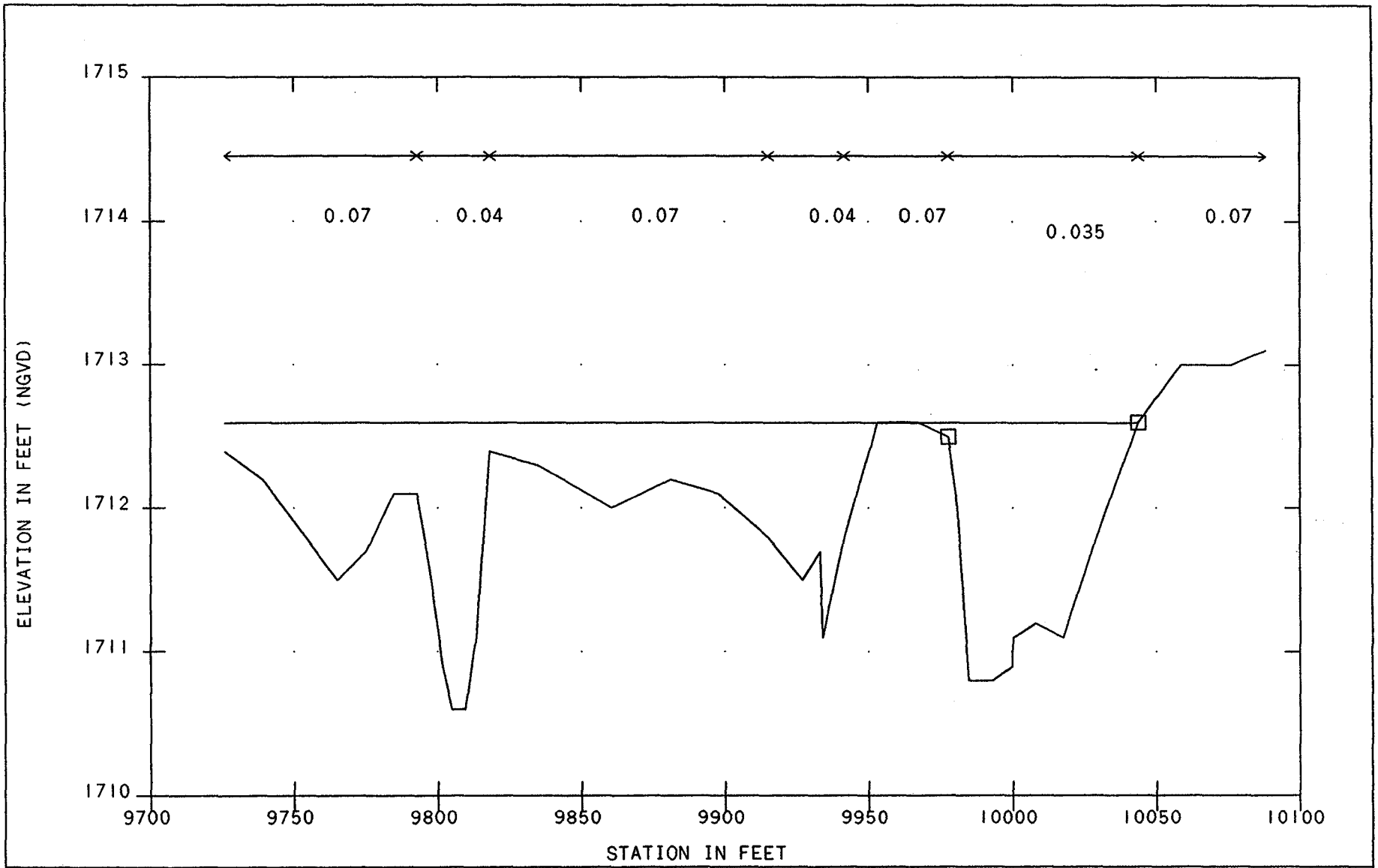

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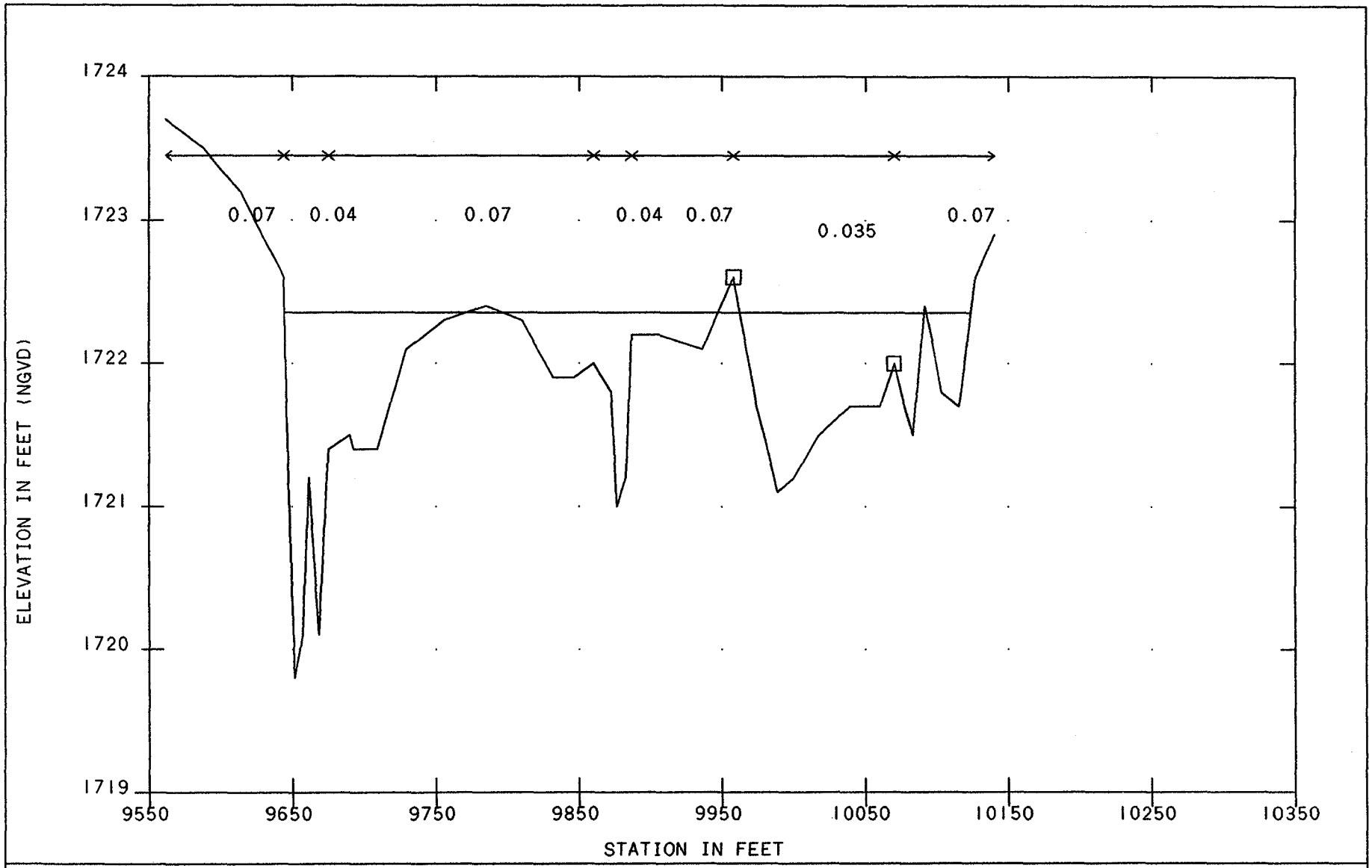

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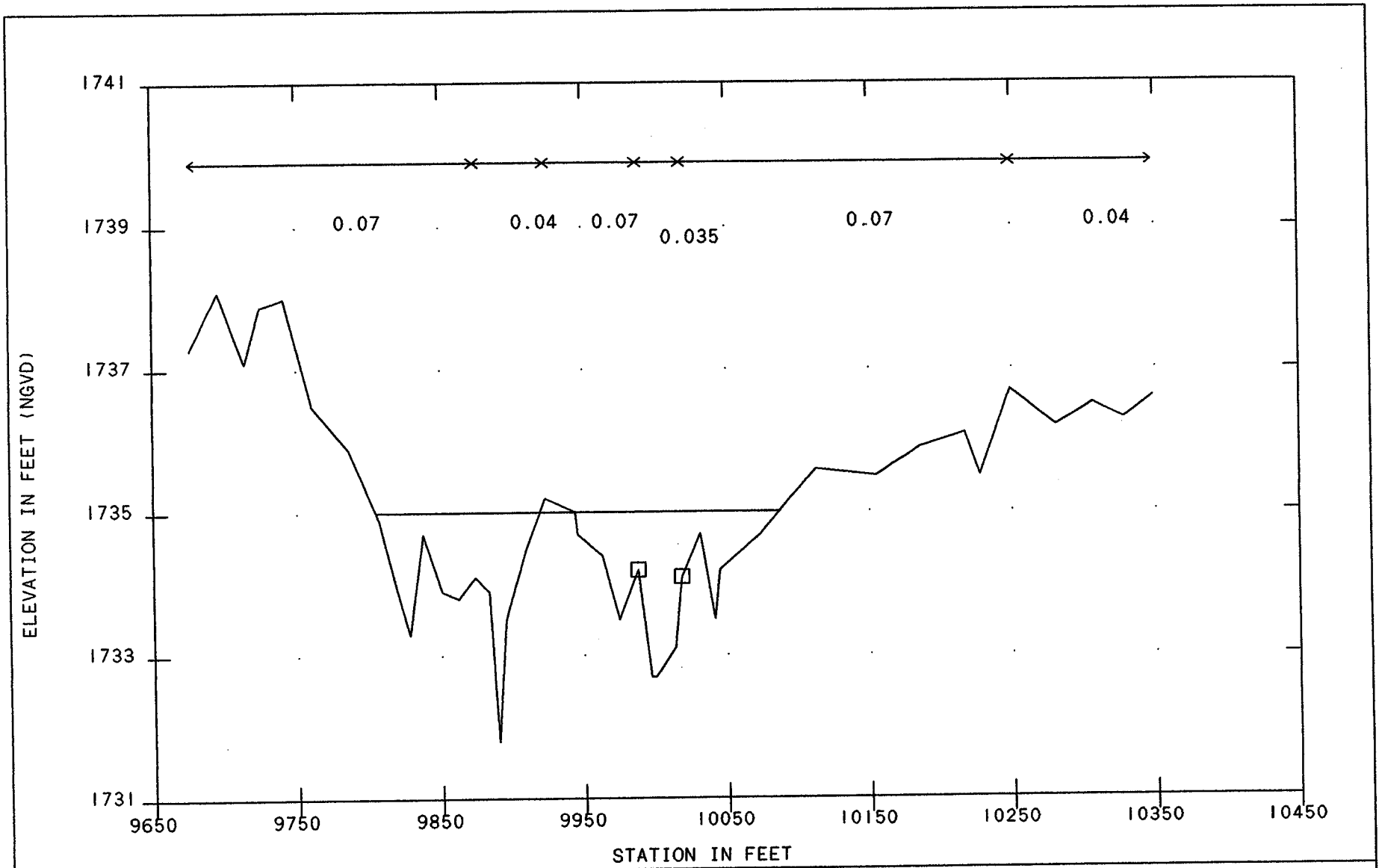

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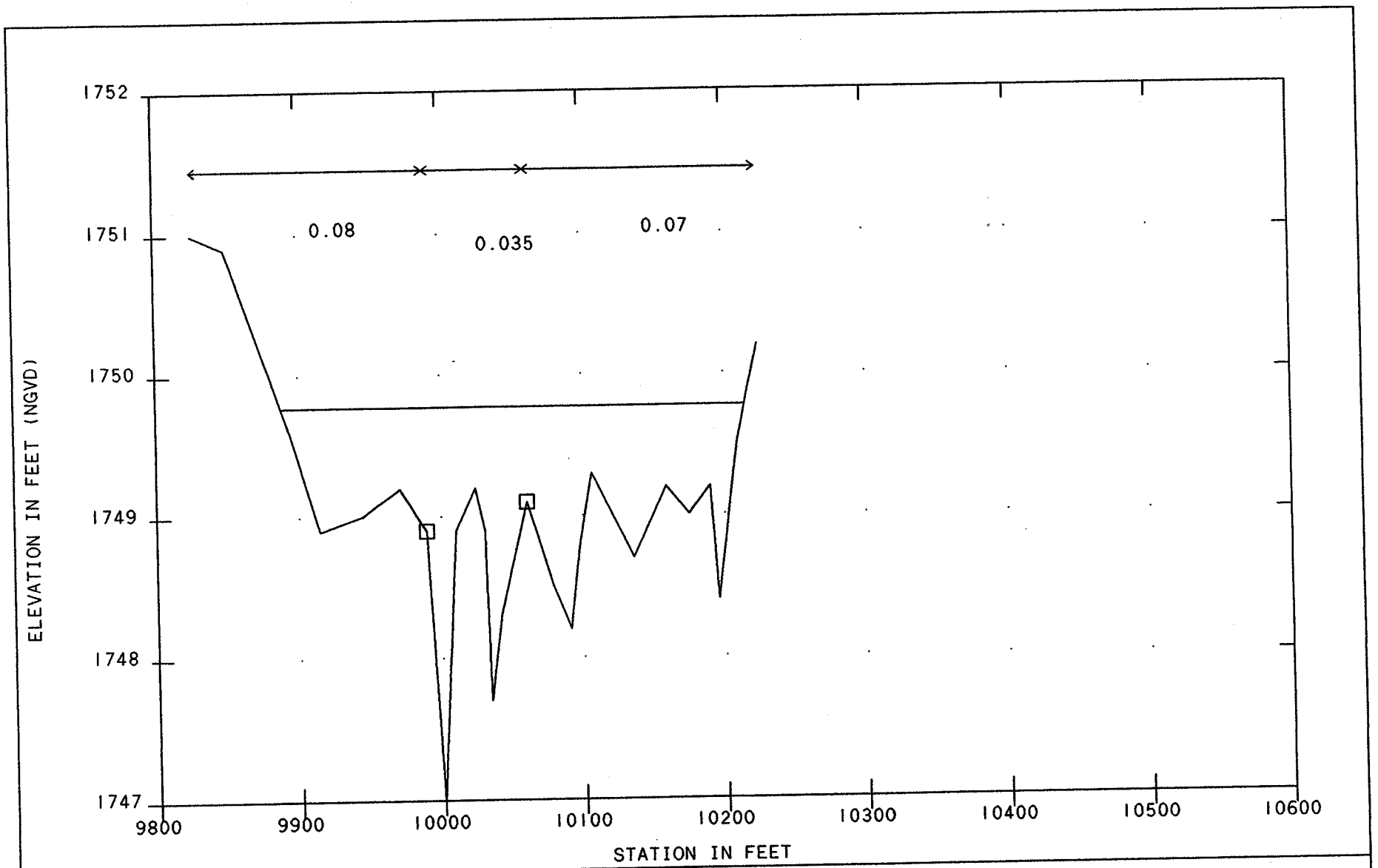

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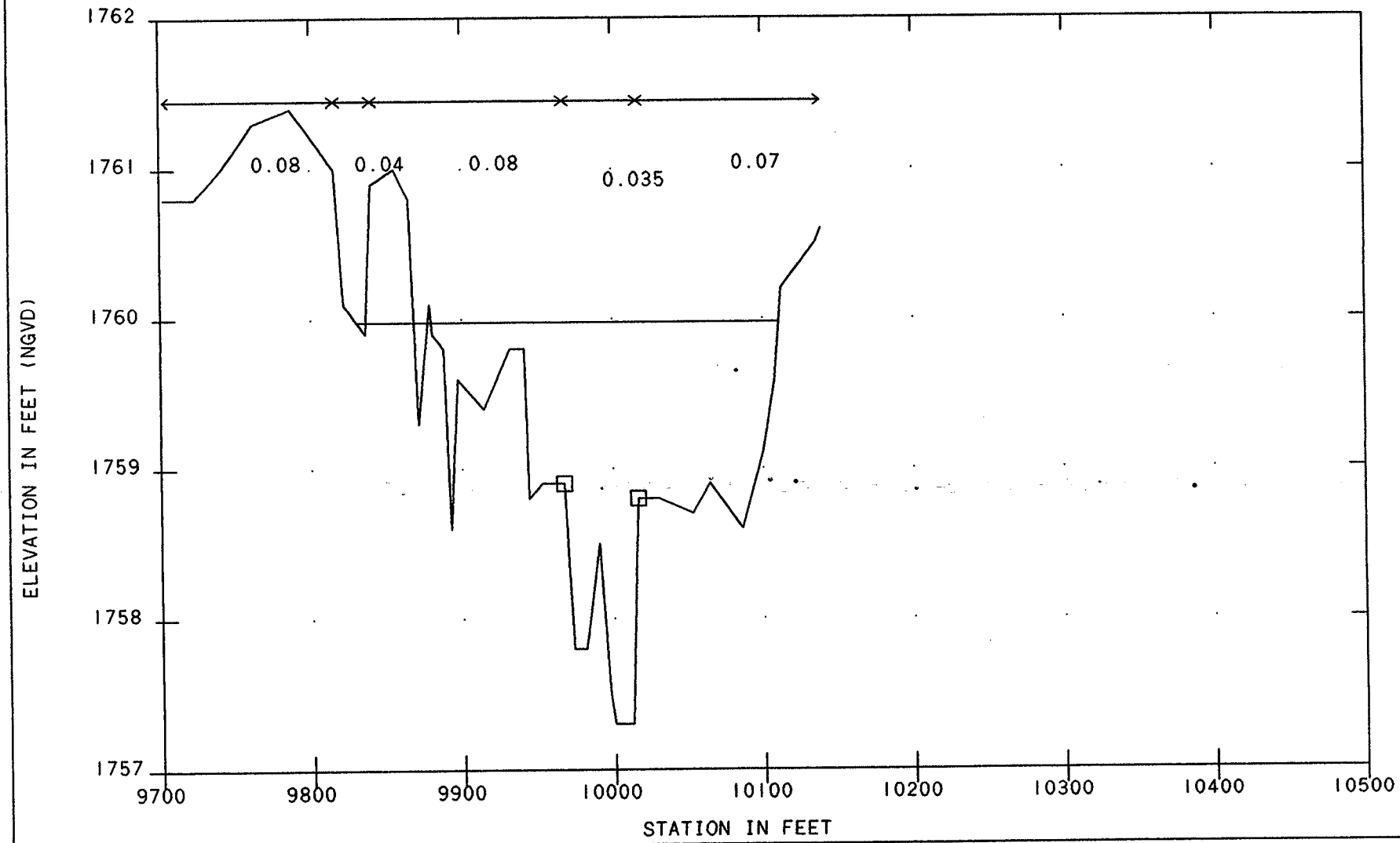

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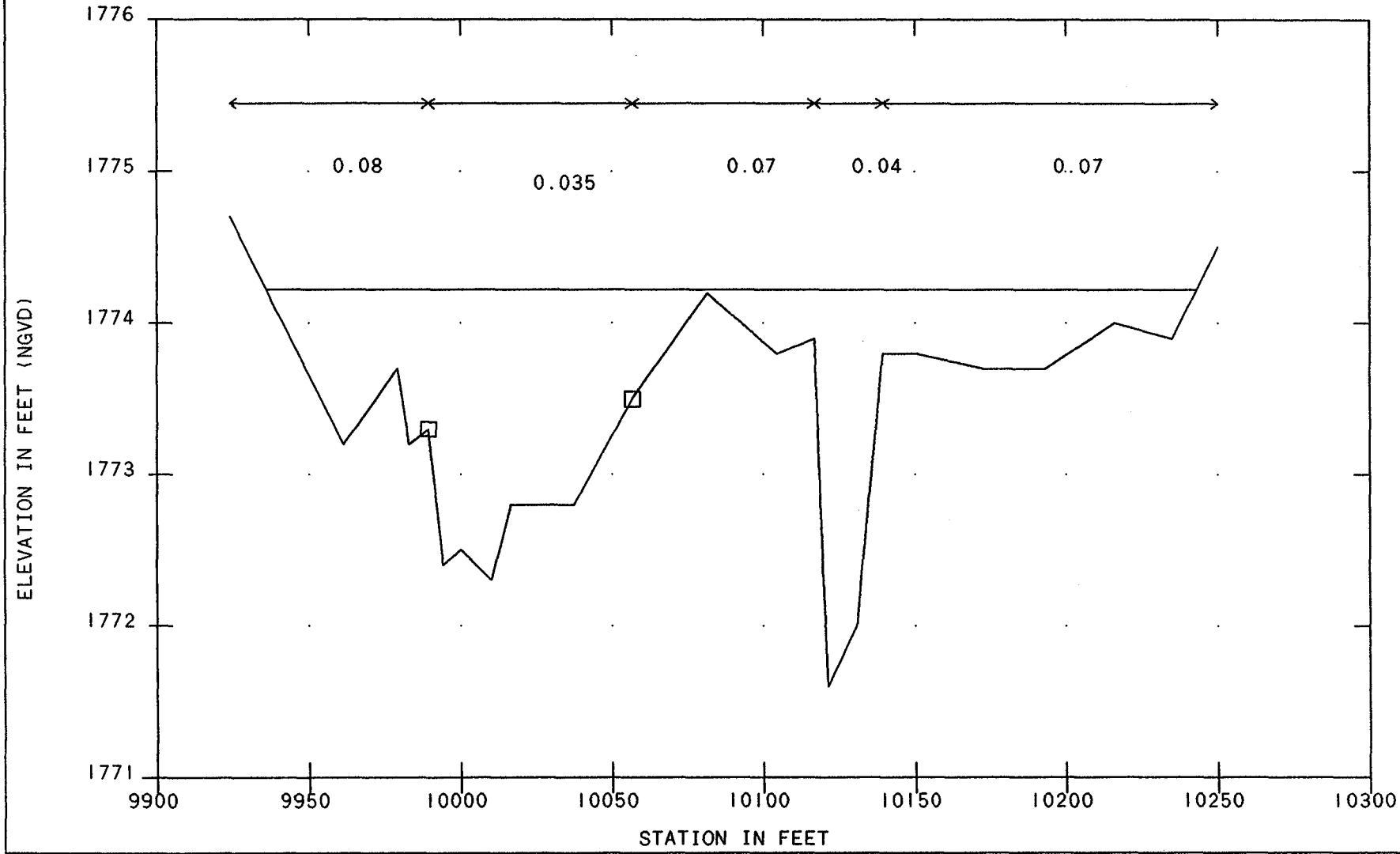

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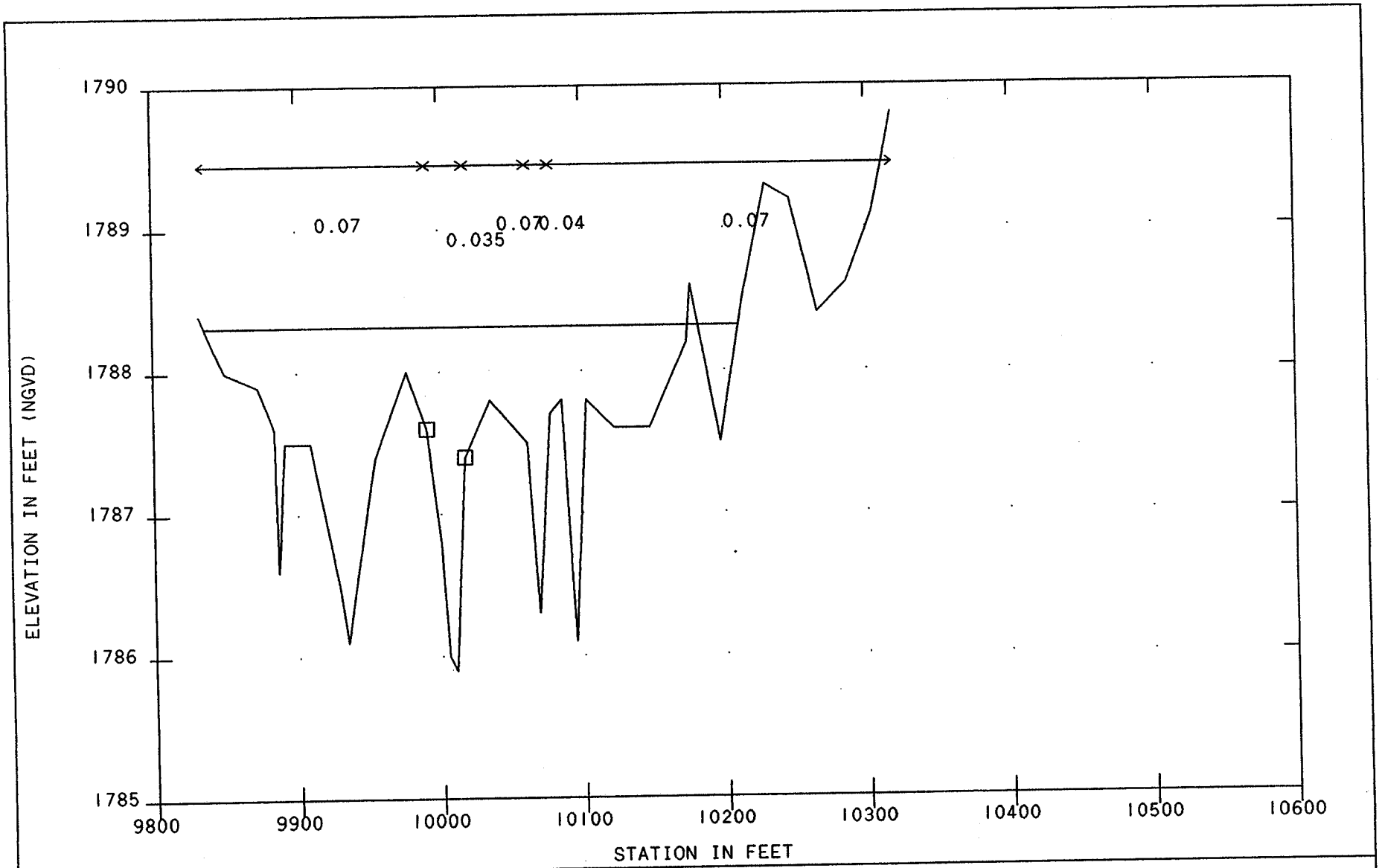

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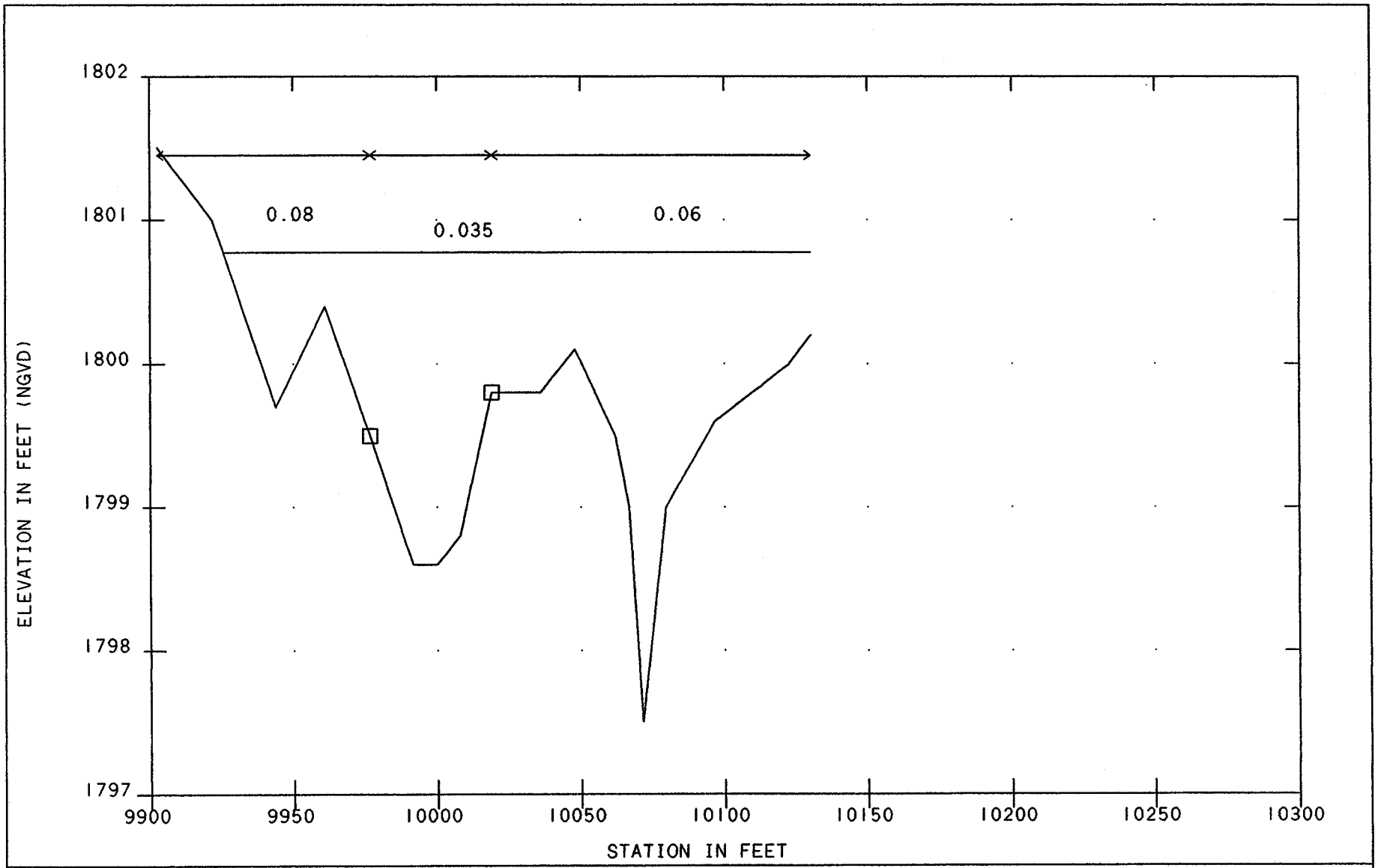

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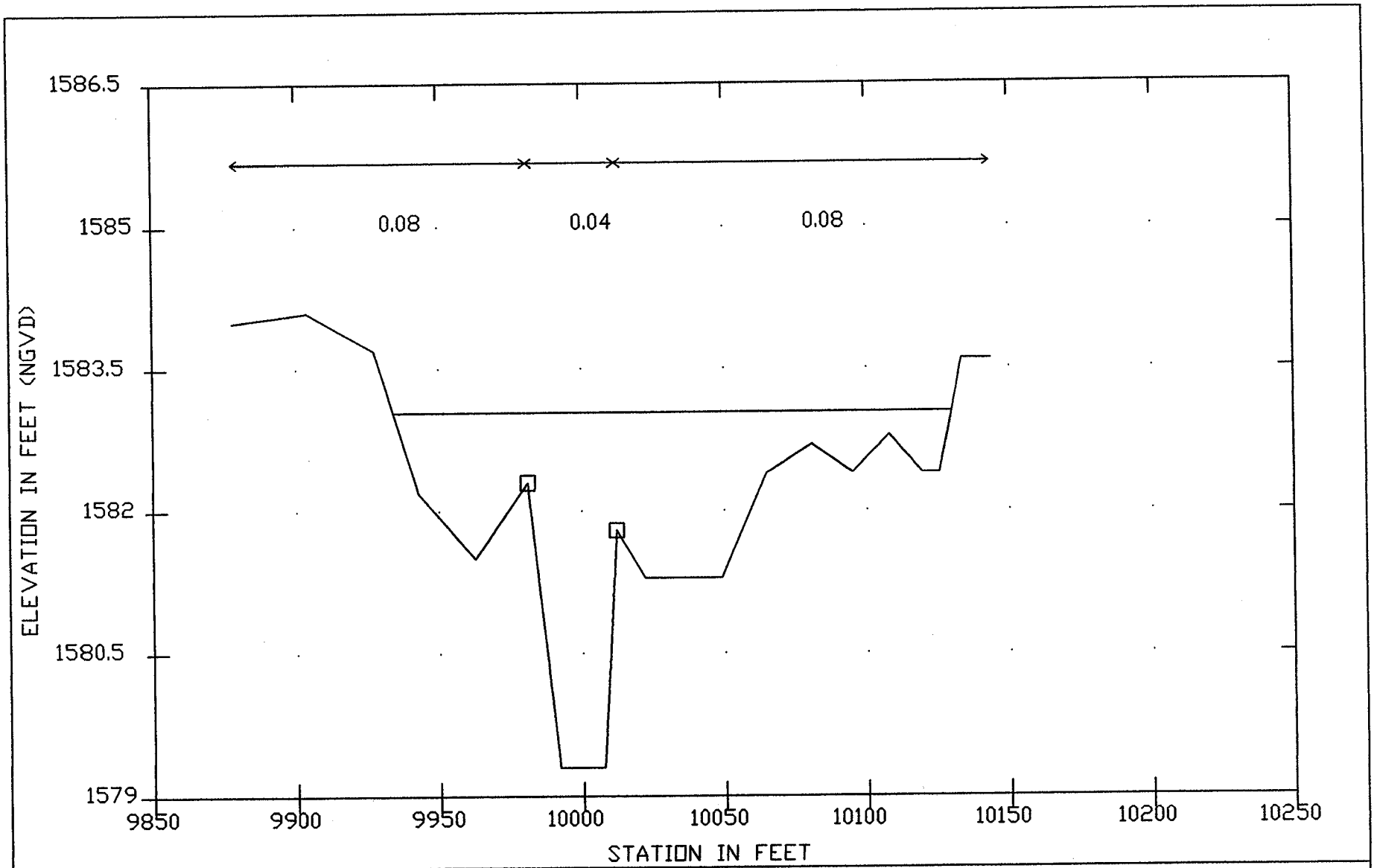
WASH A SOUTH



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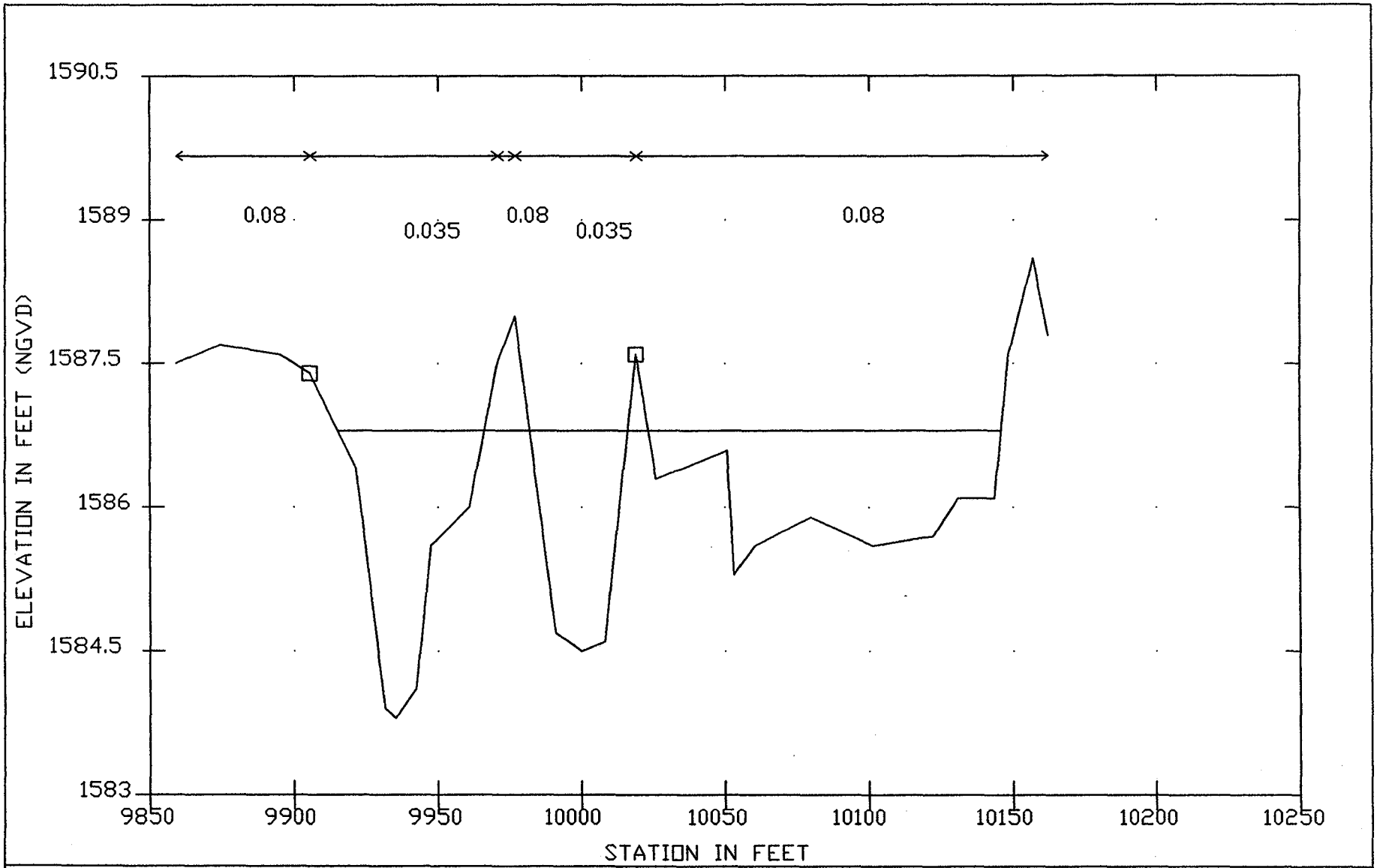

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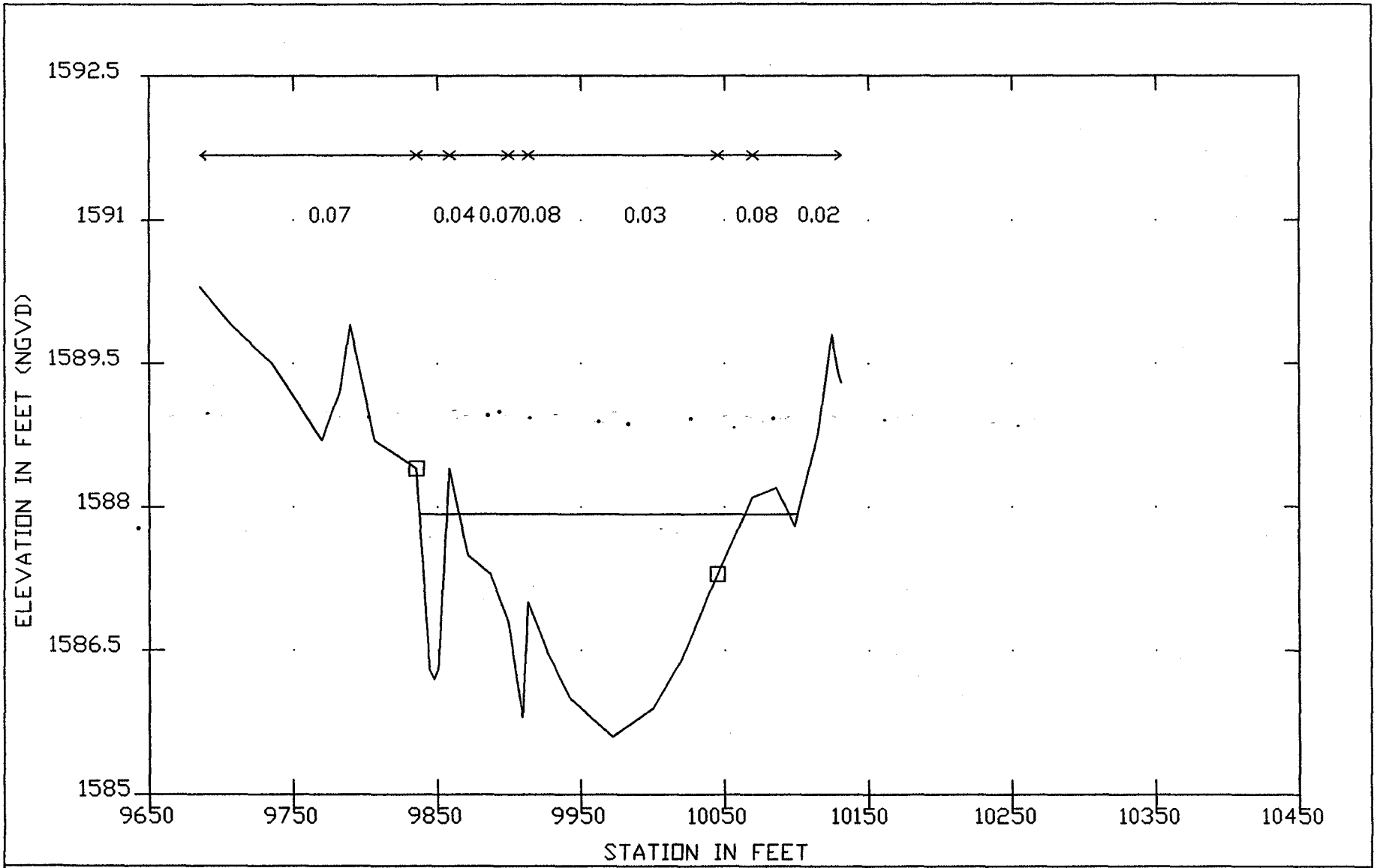

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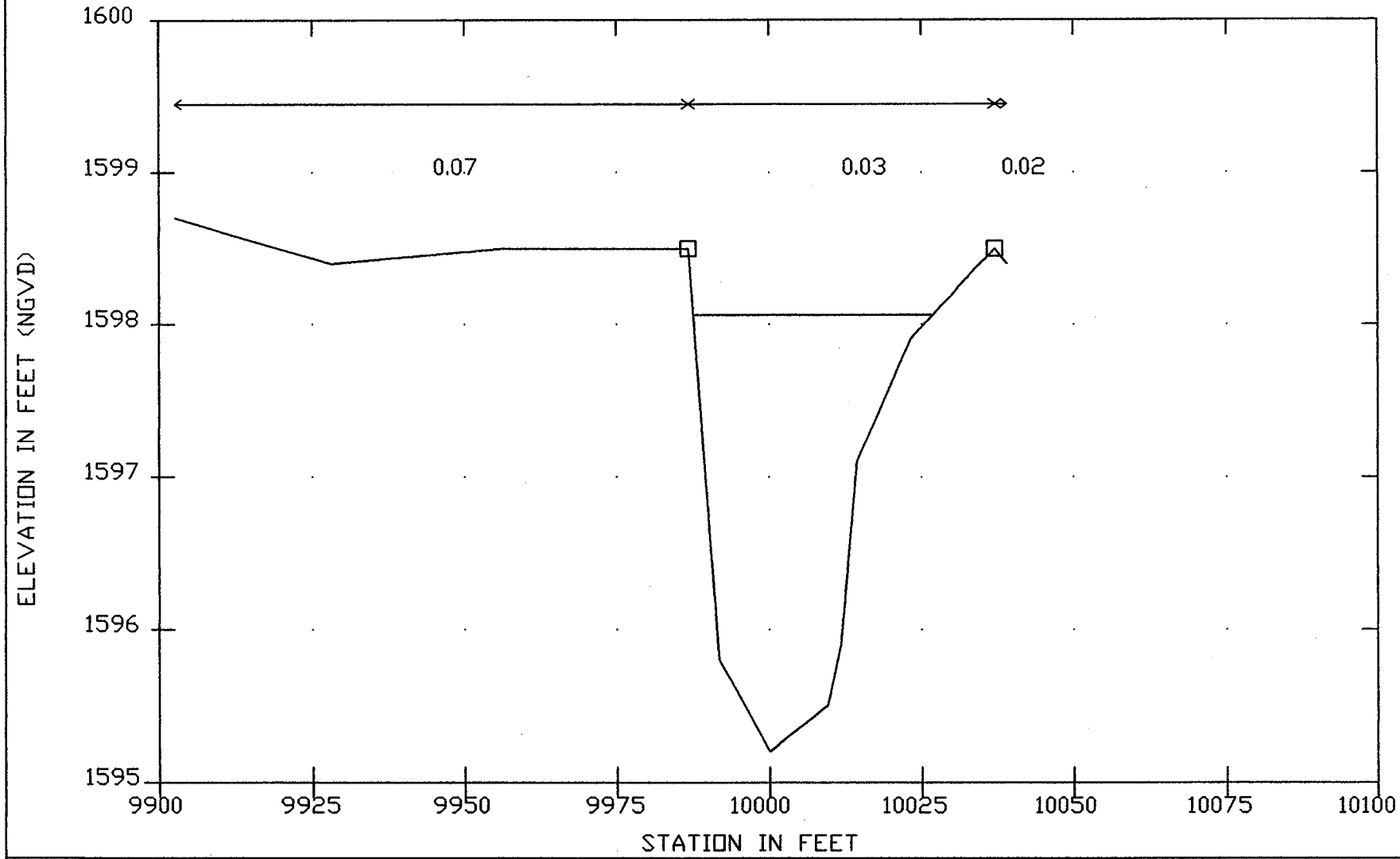

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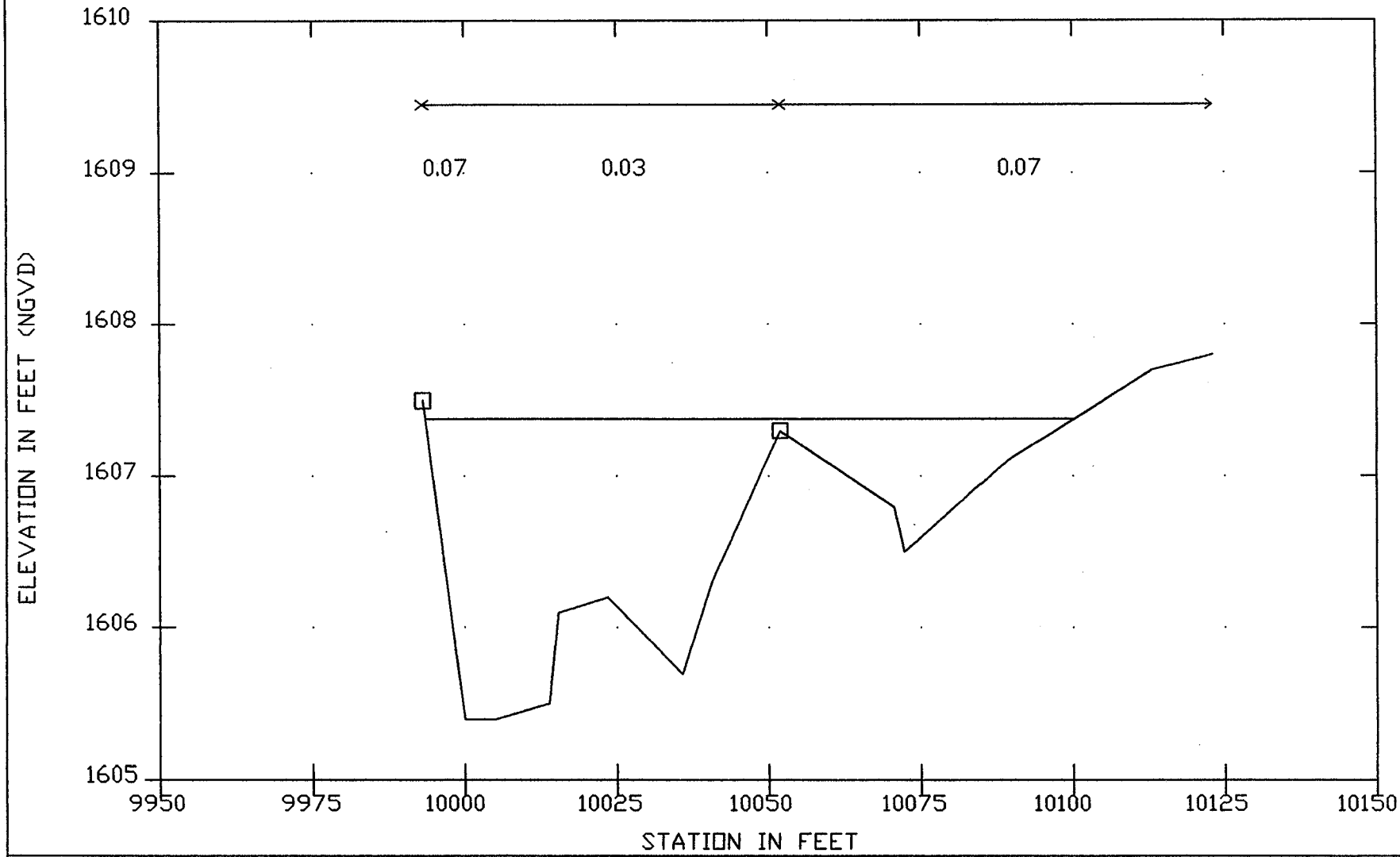

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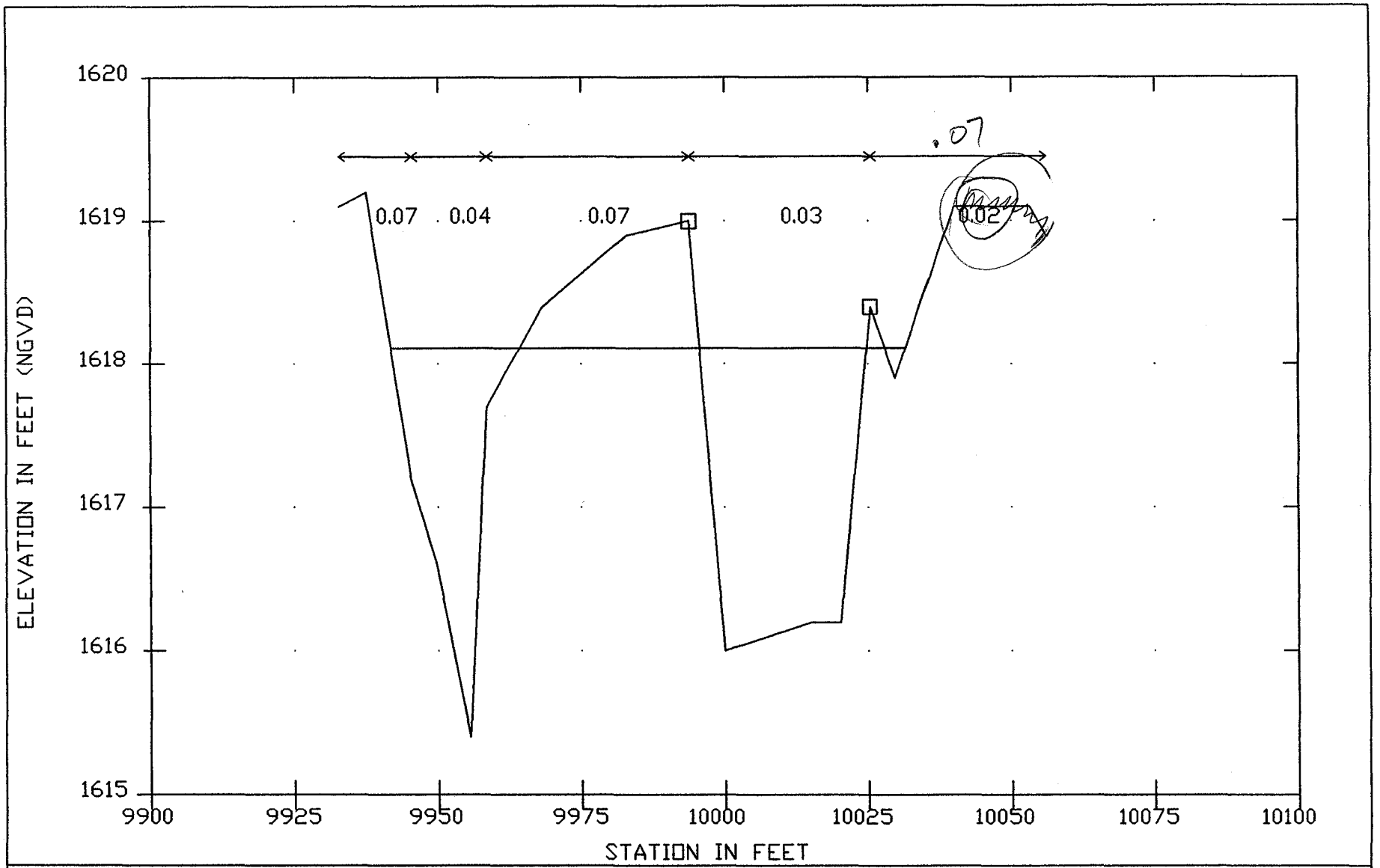

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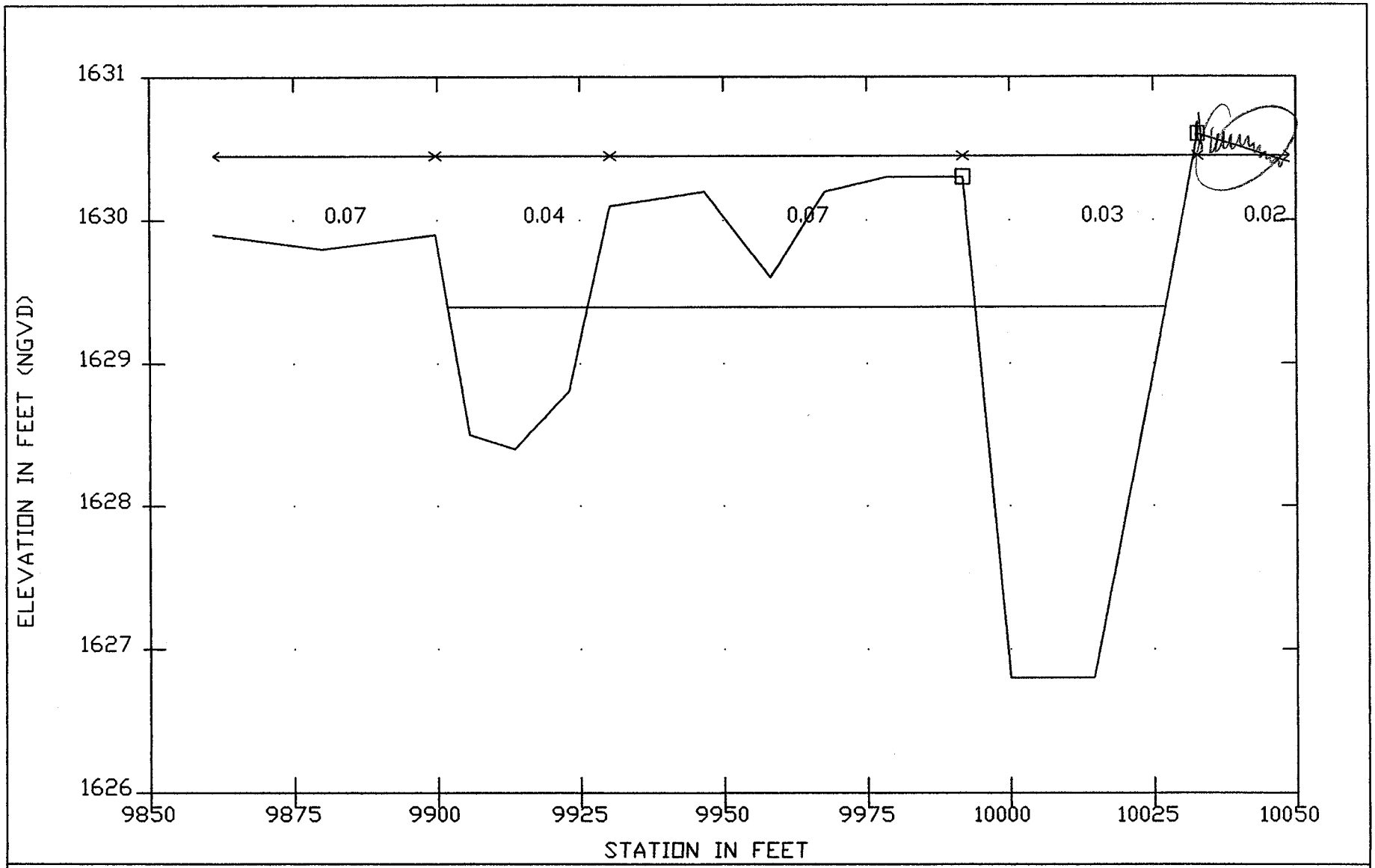

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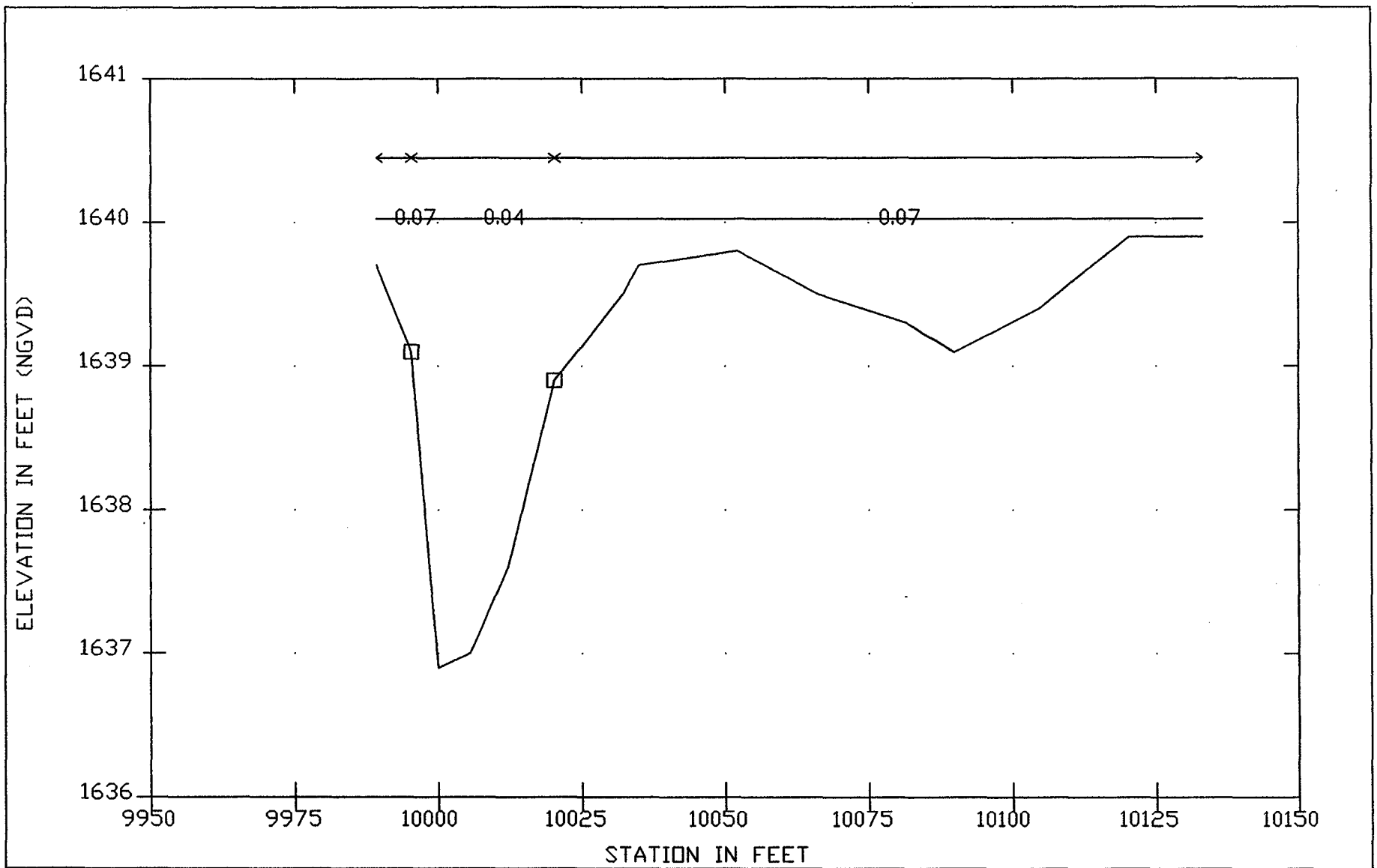

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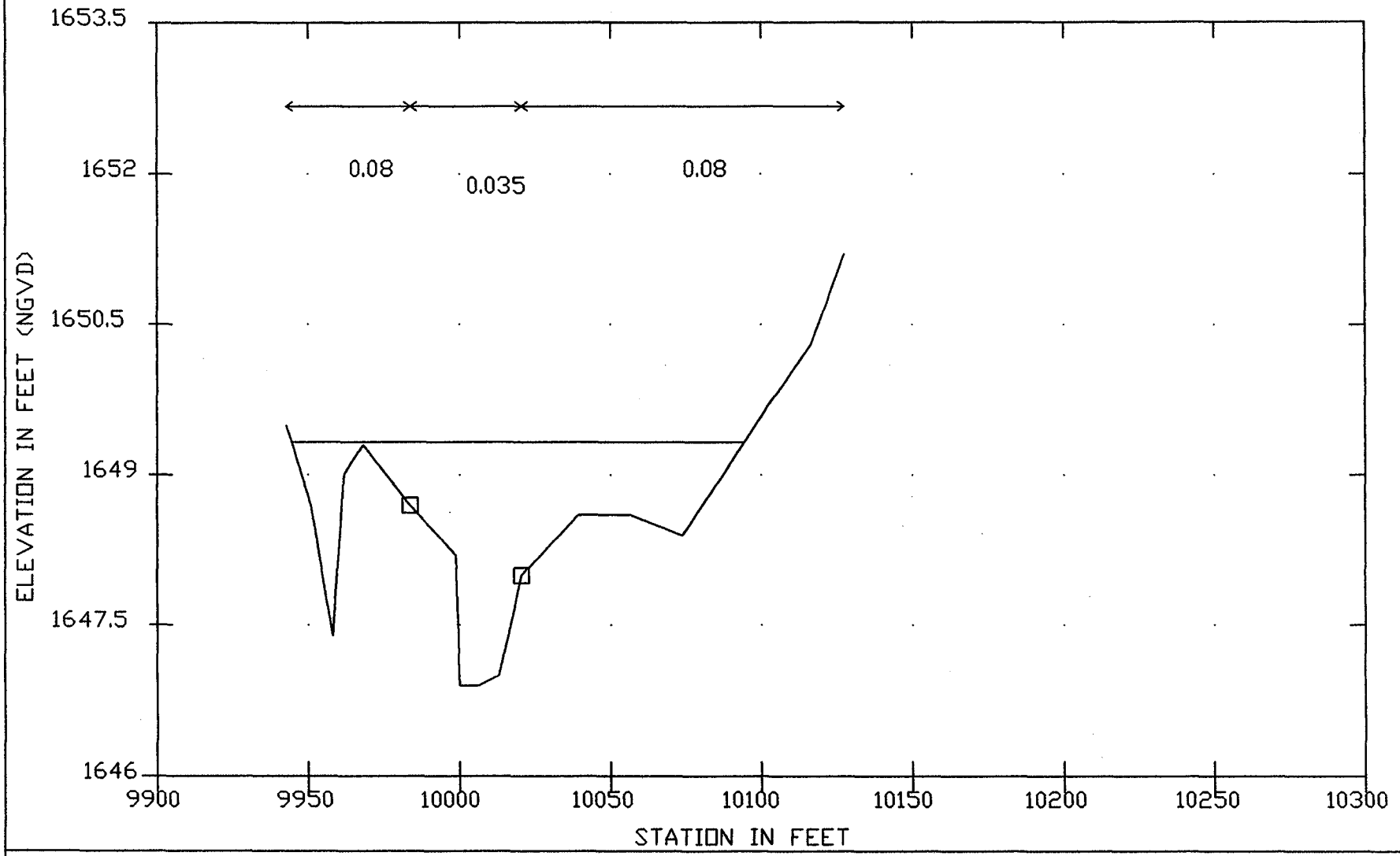

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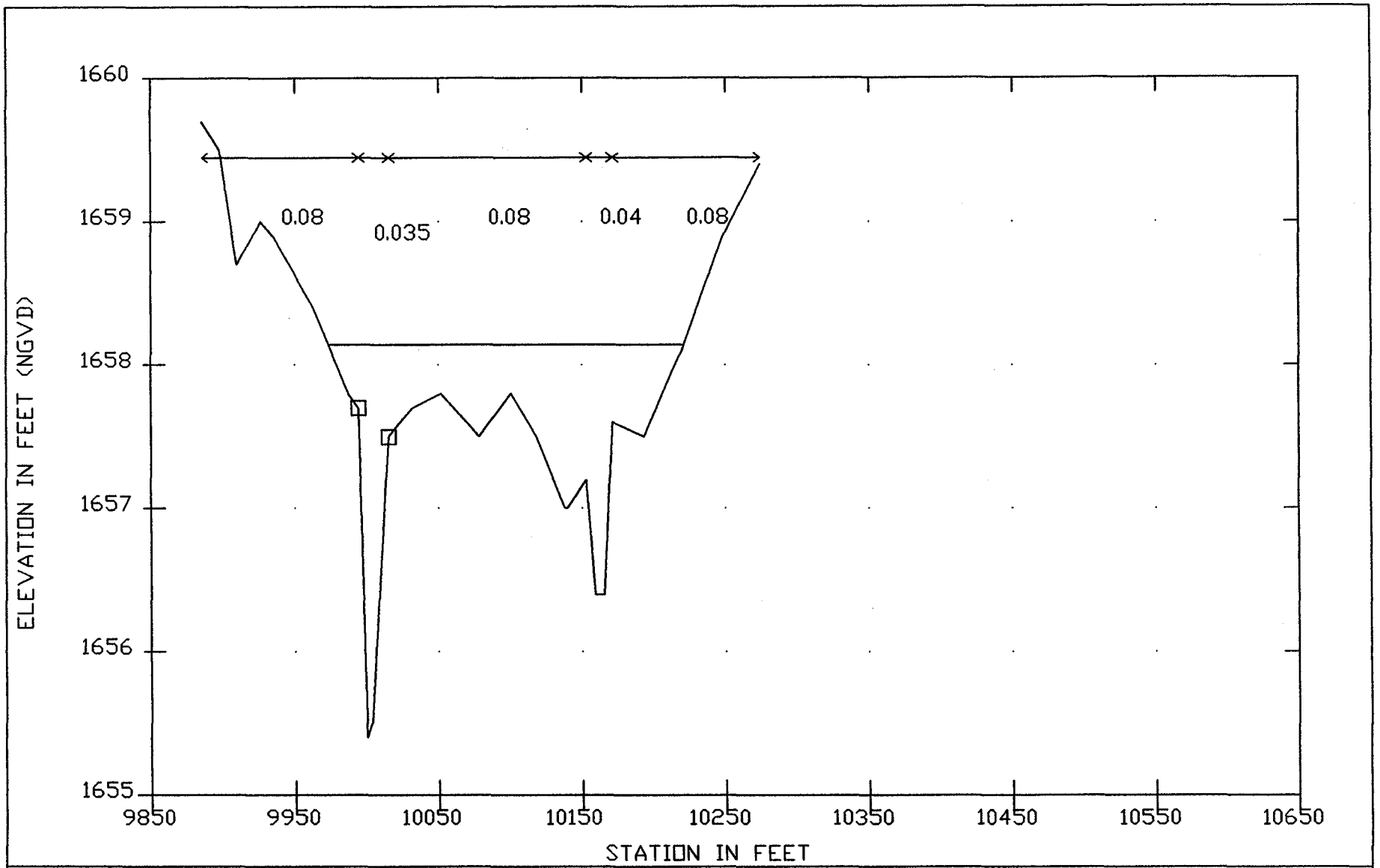

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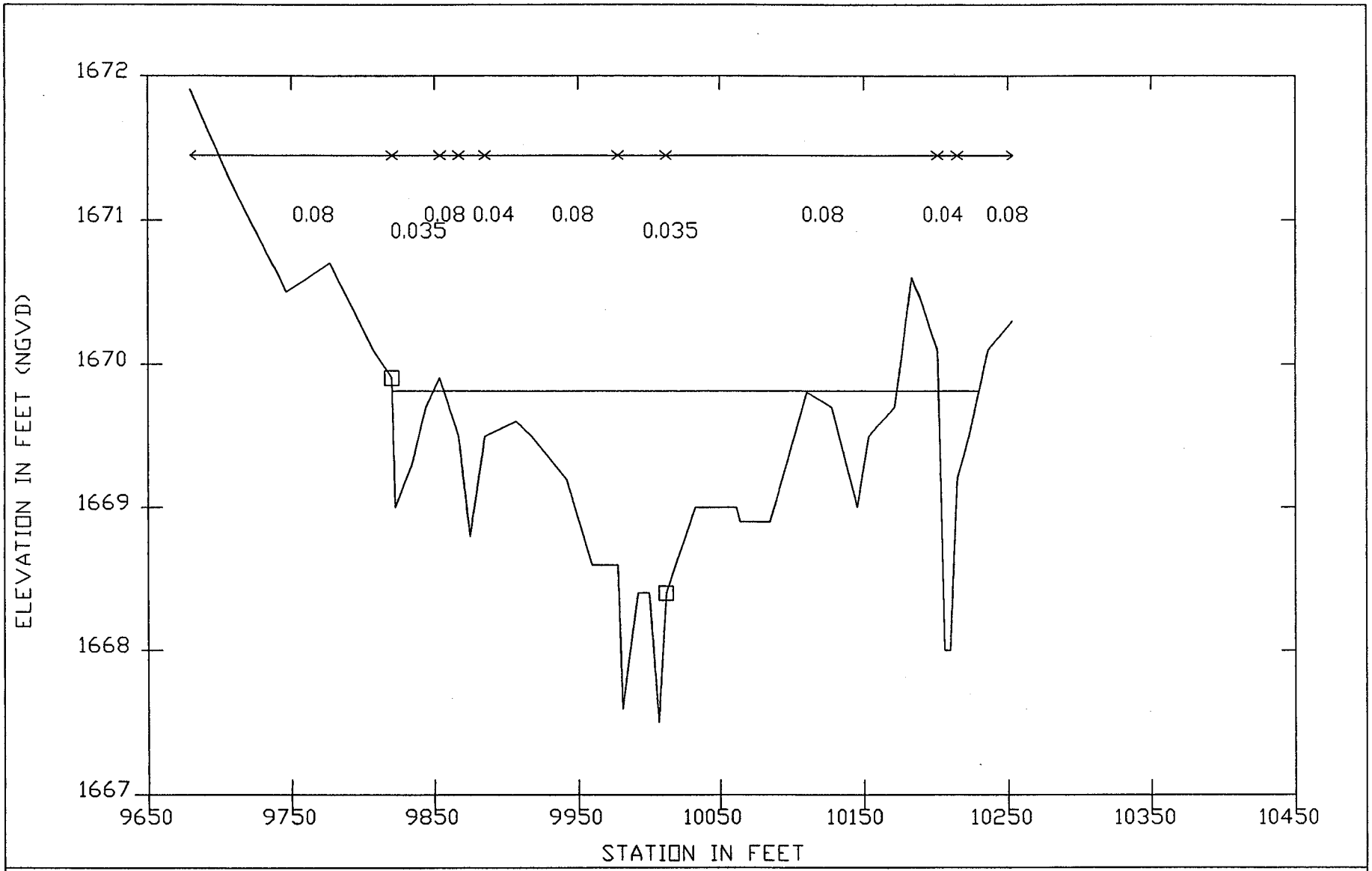

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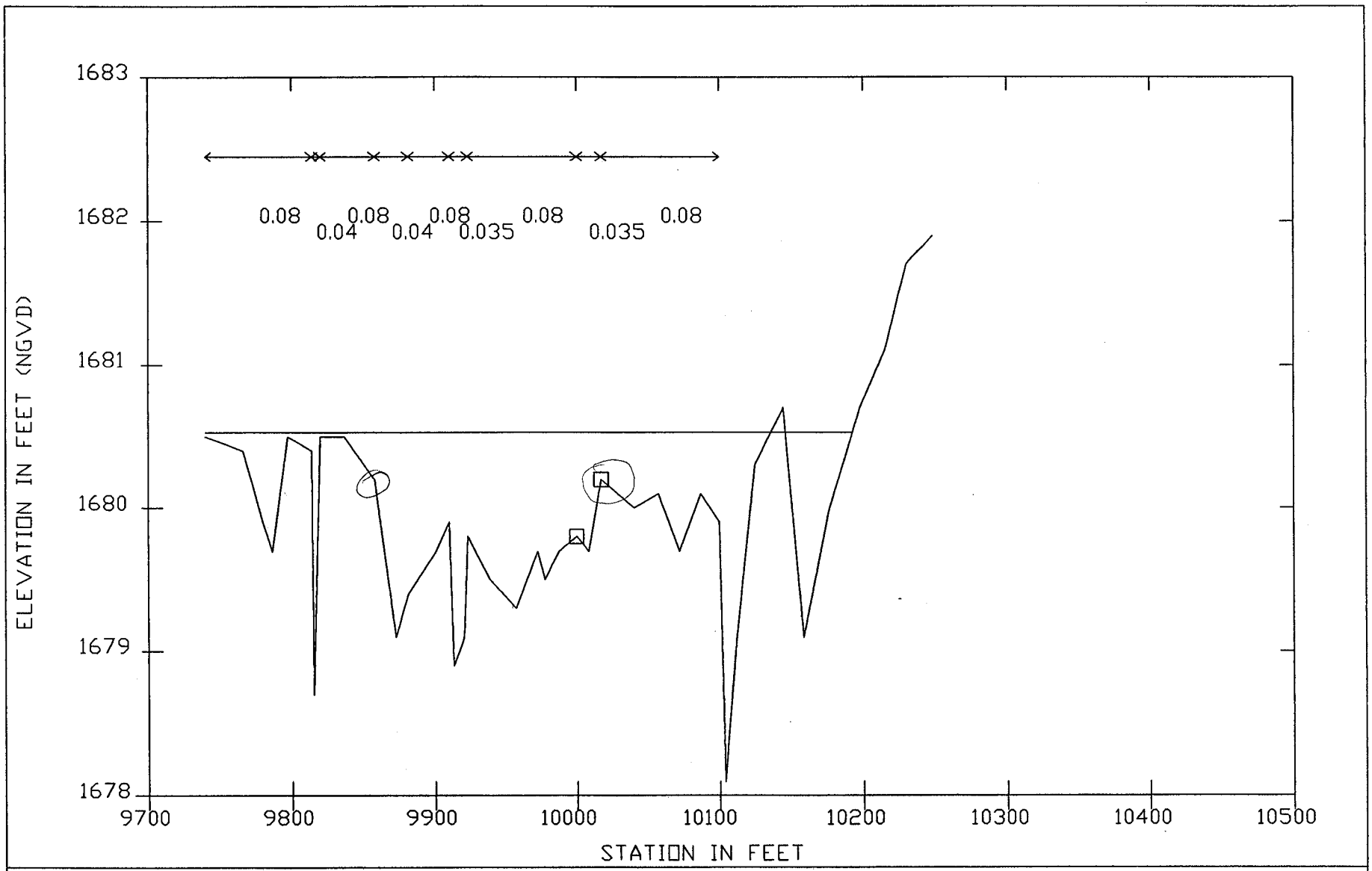

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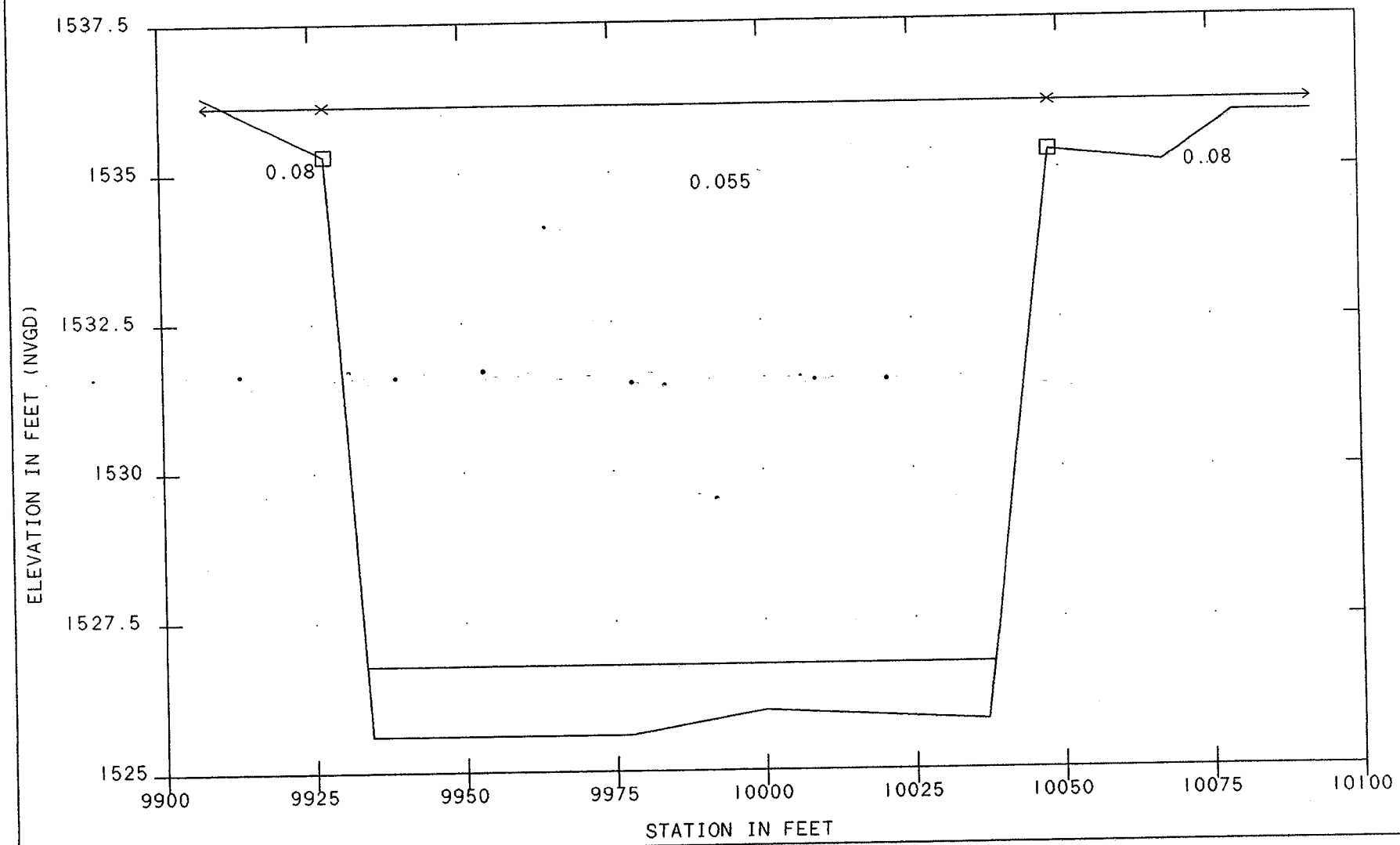
WASH F



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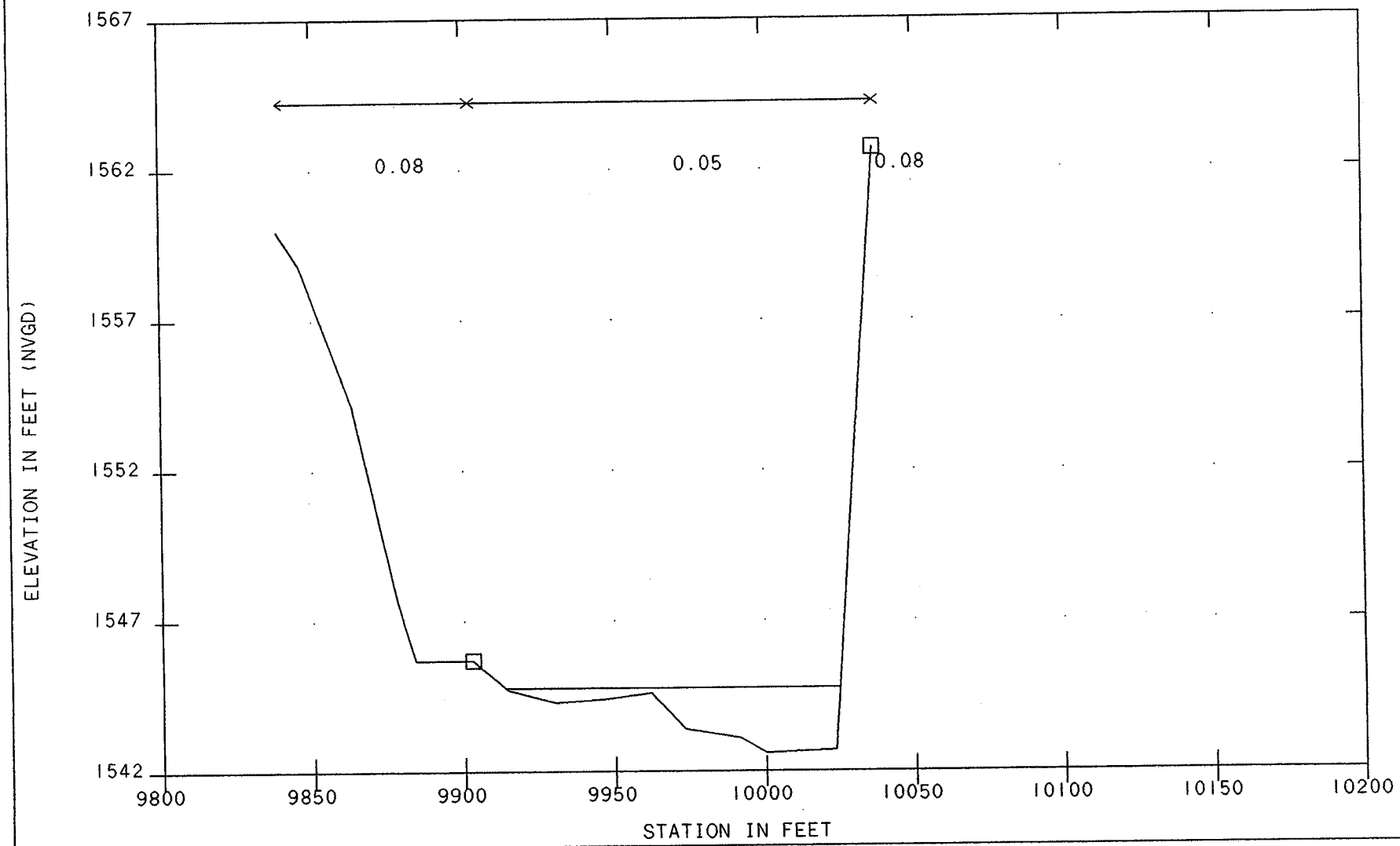

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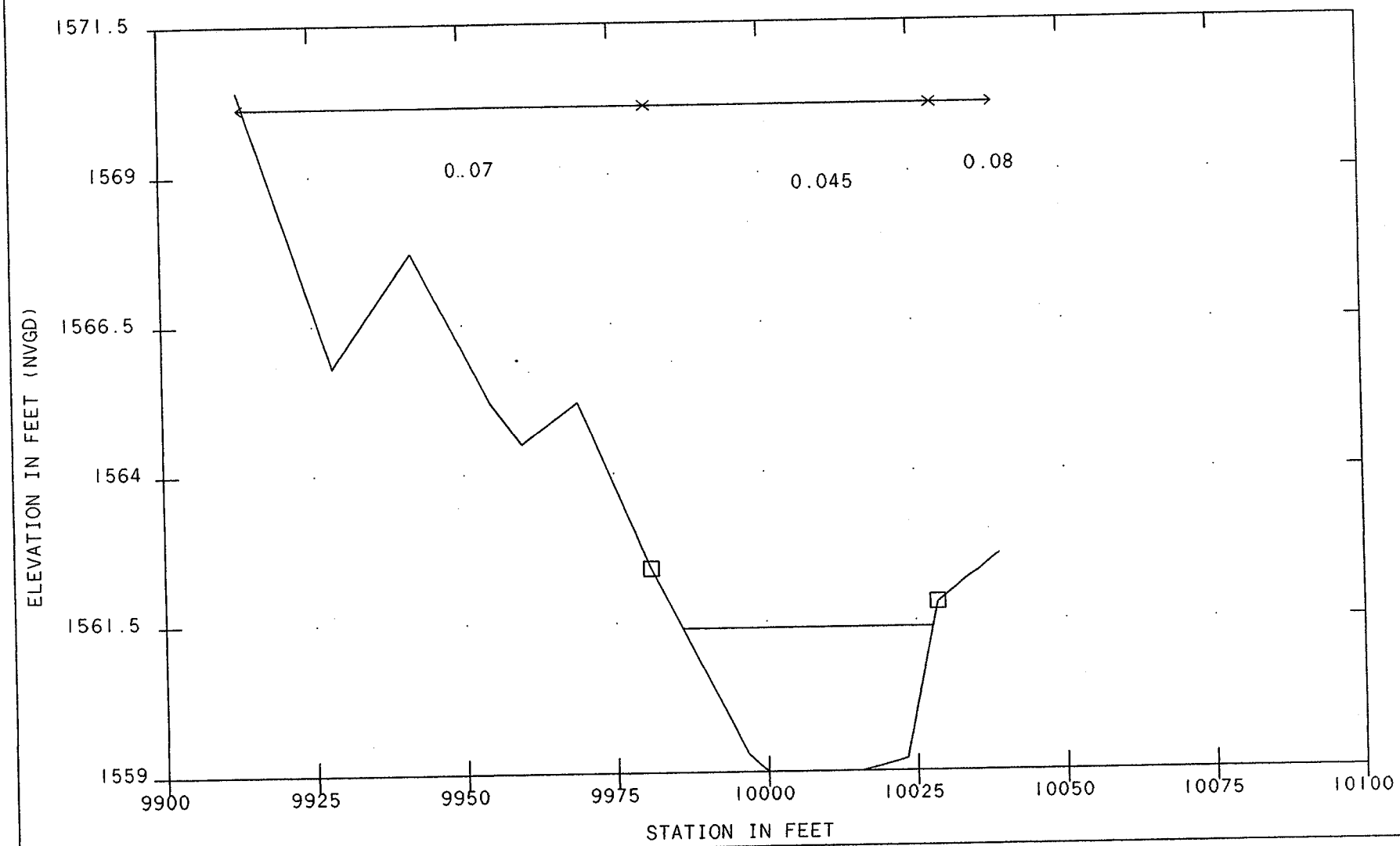

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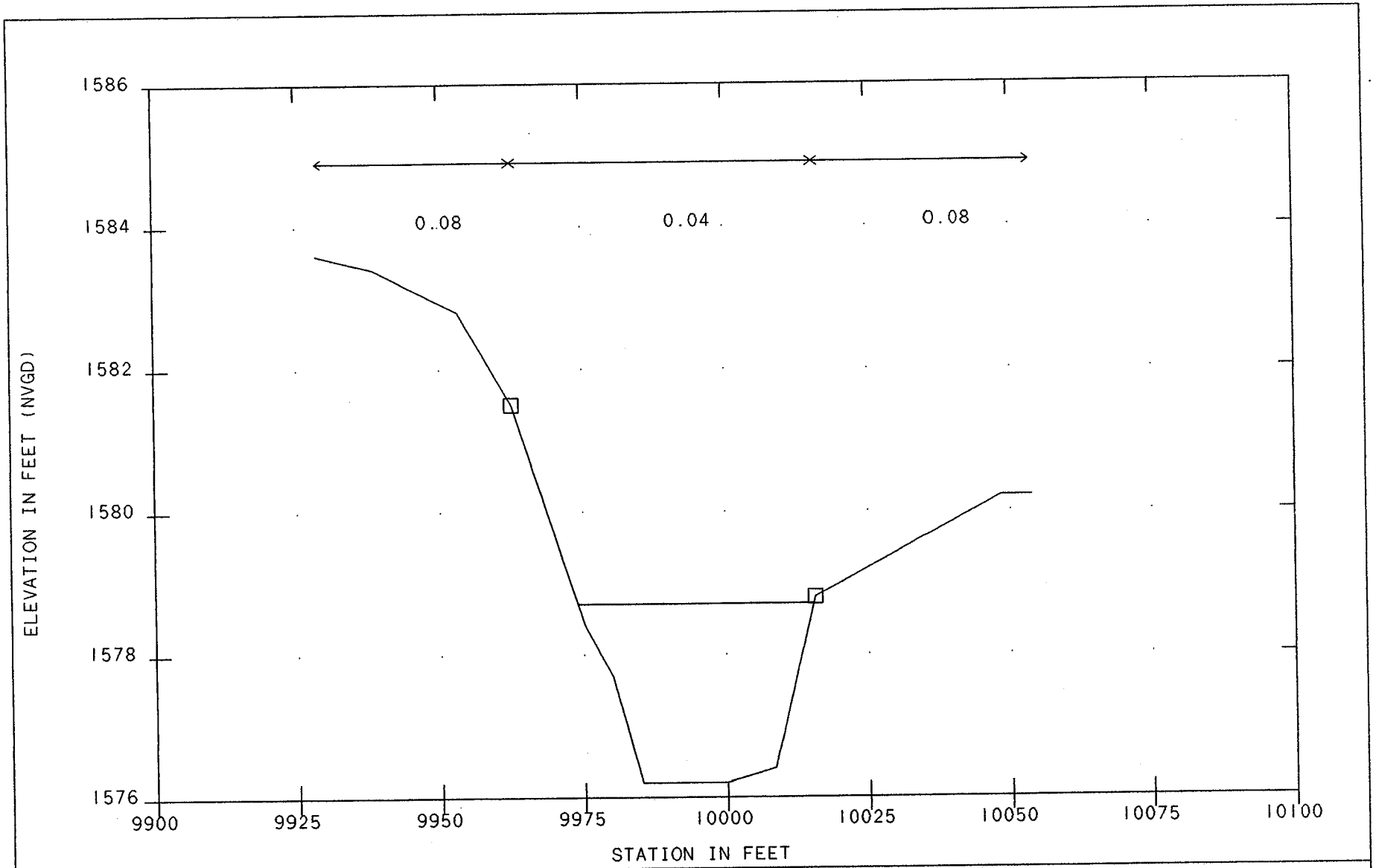

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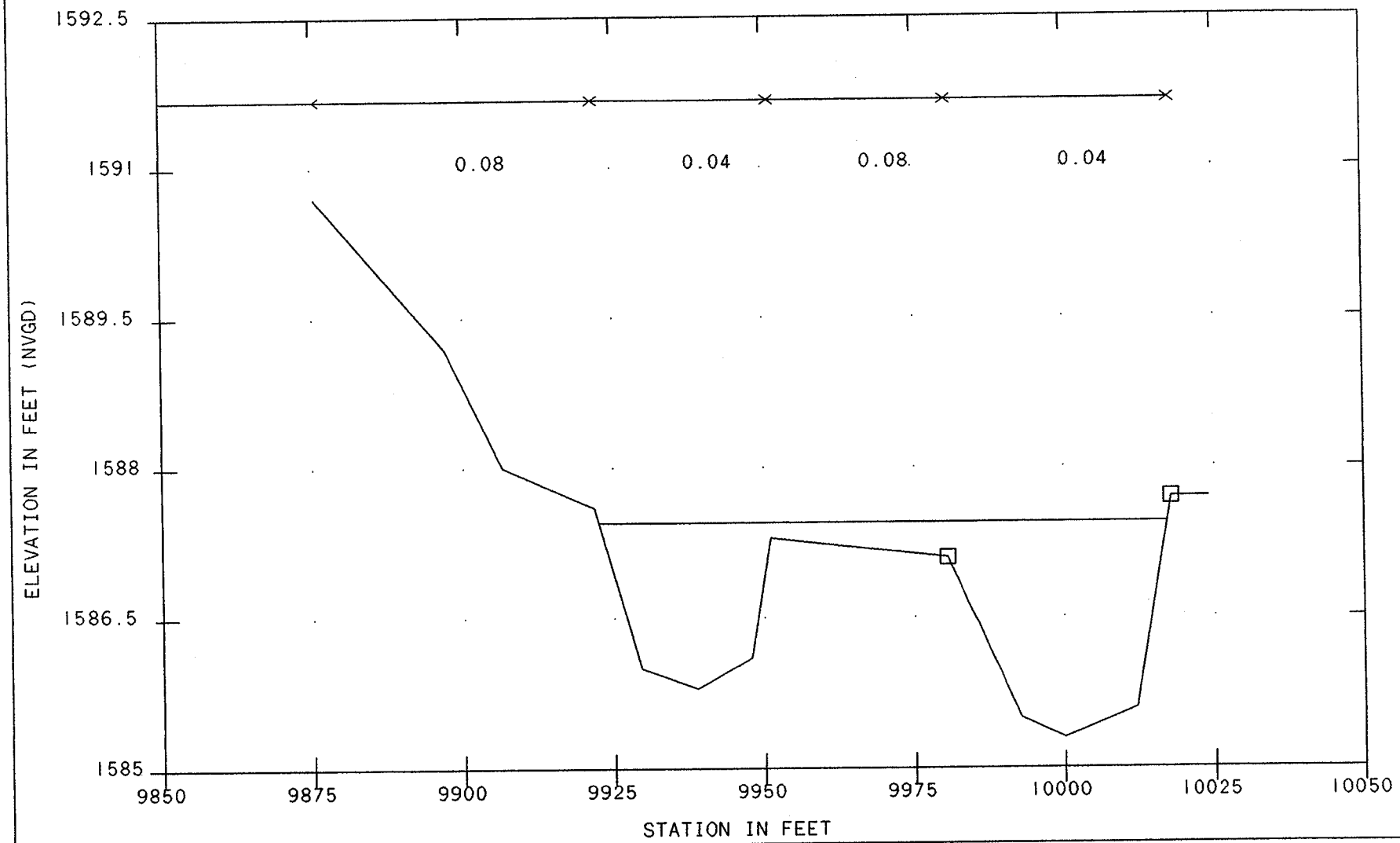

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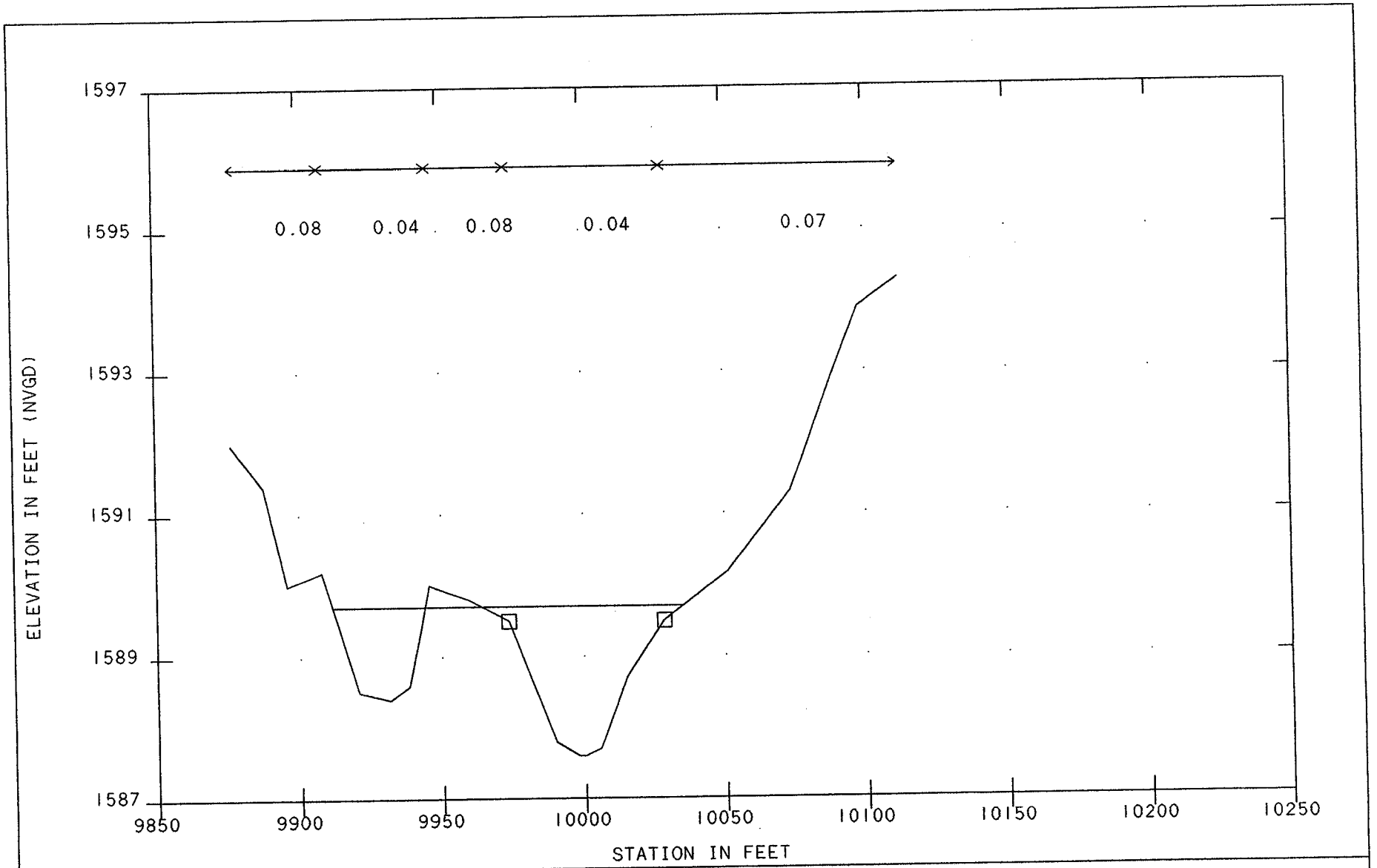

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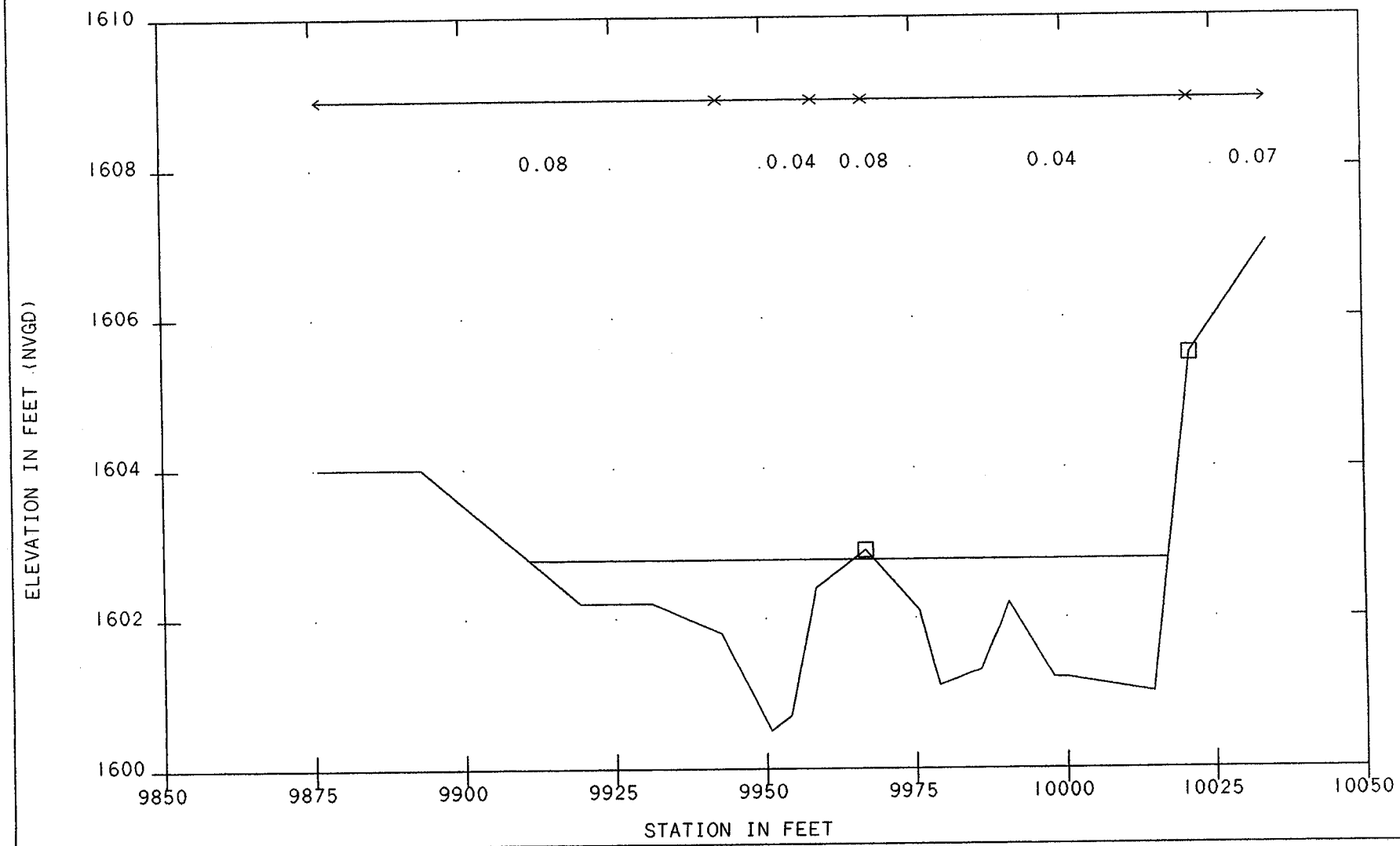

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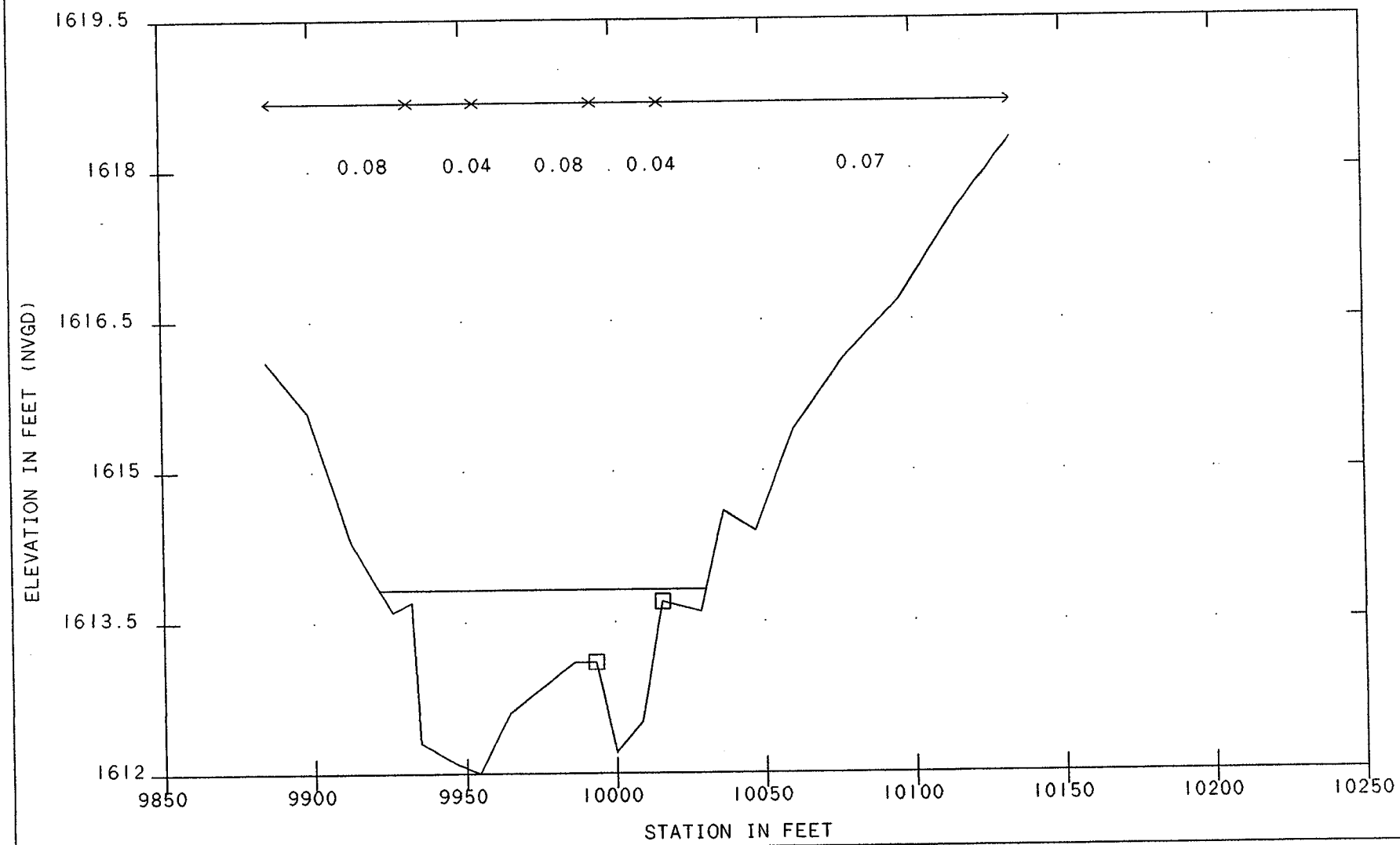

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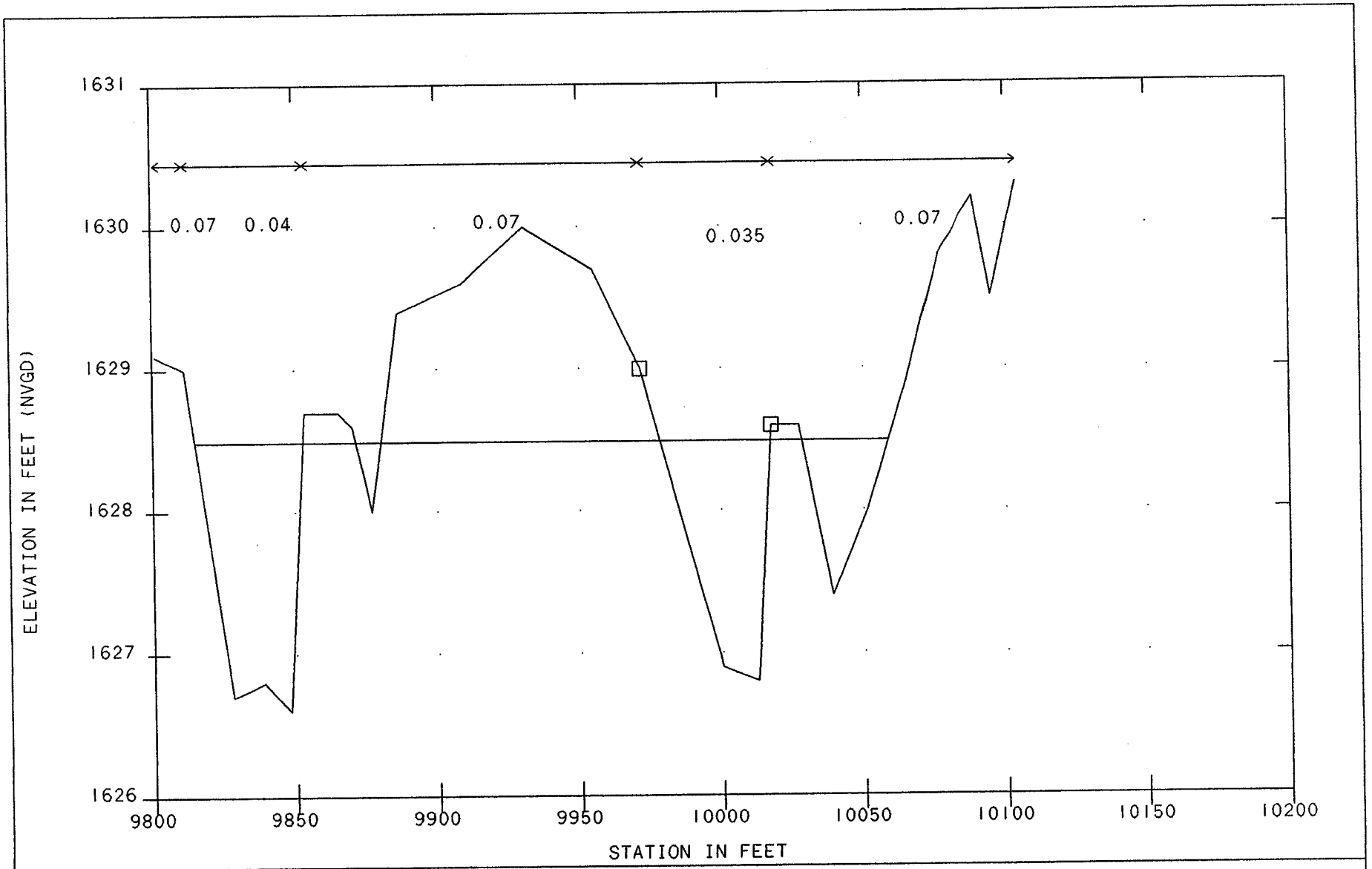

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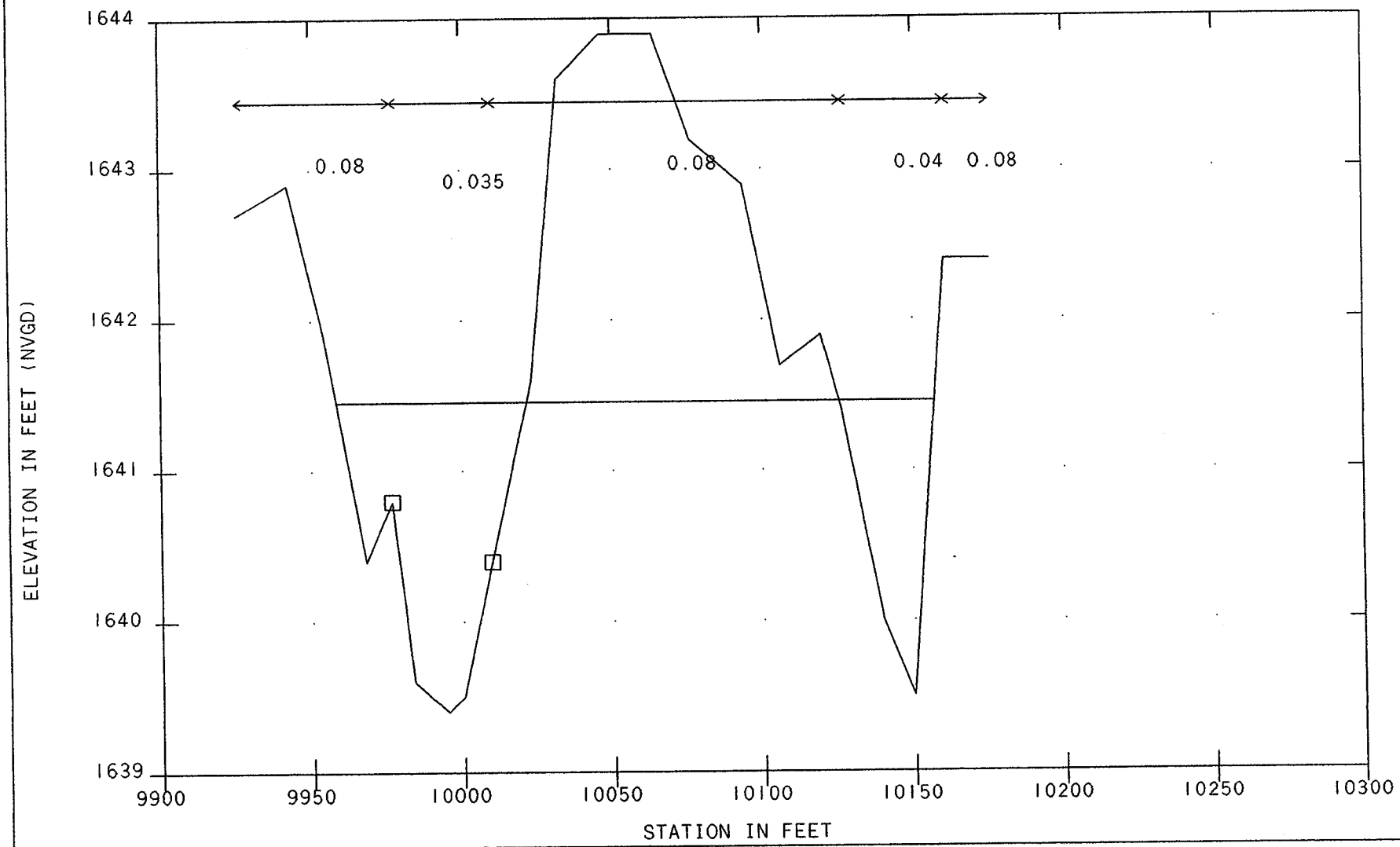

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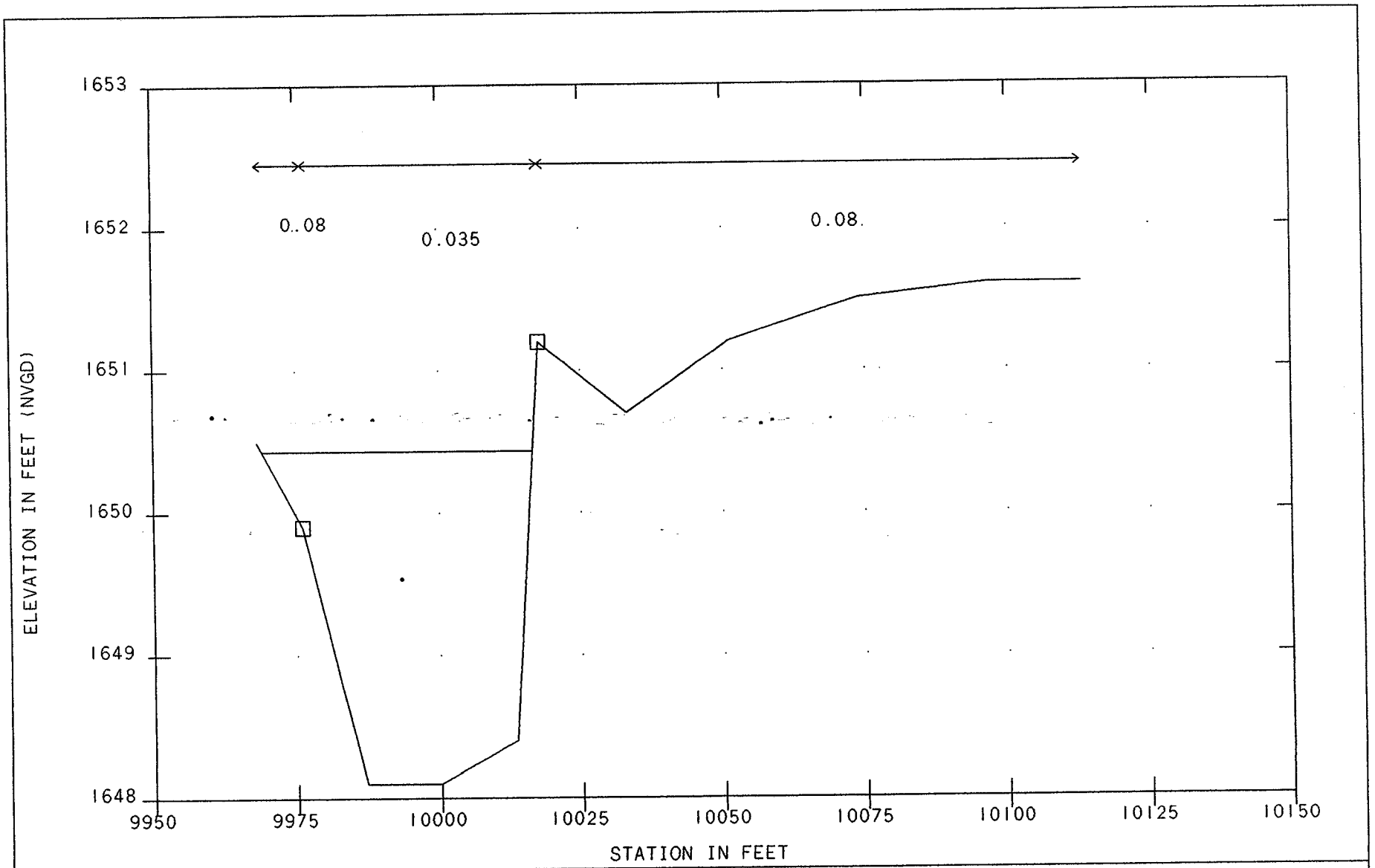

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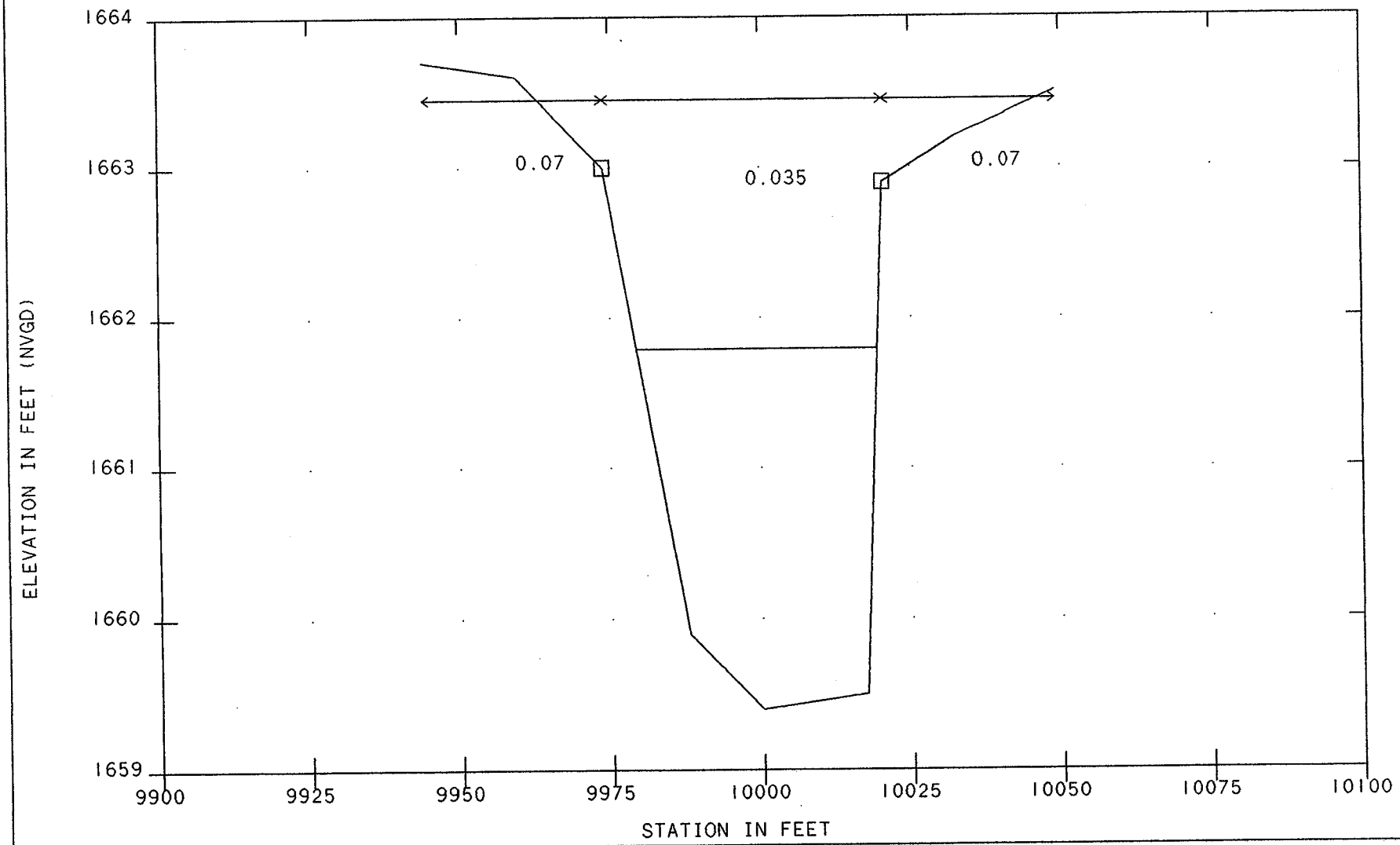

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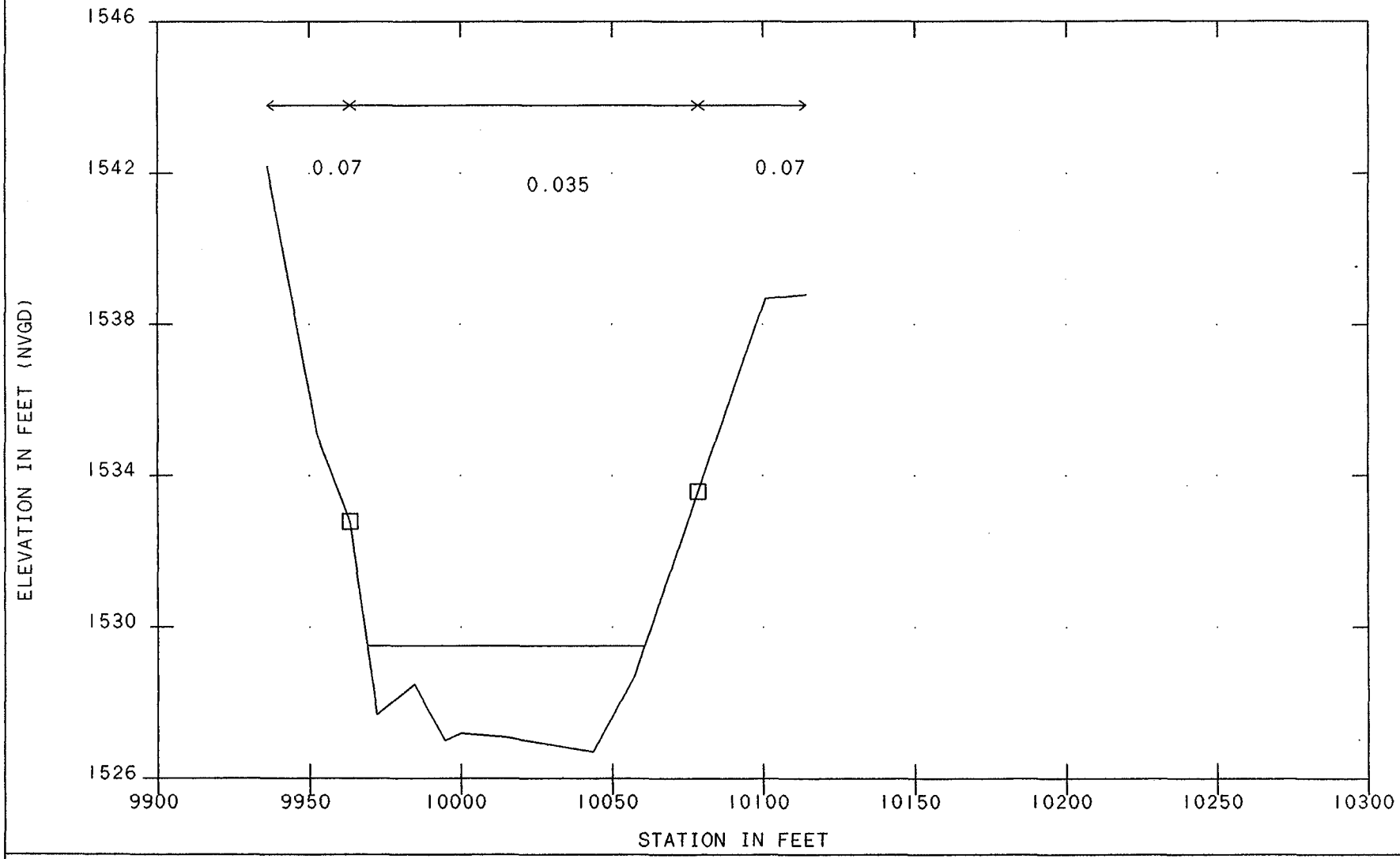
WASH I



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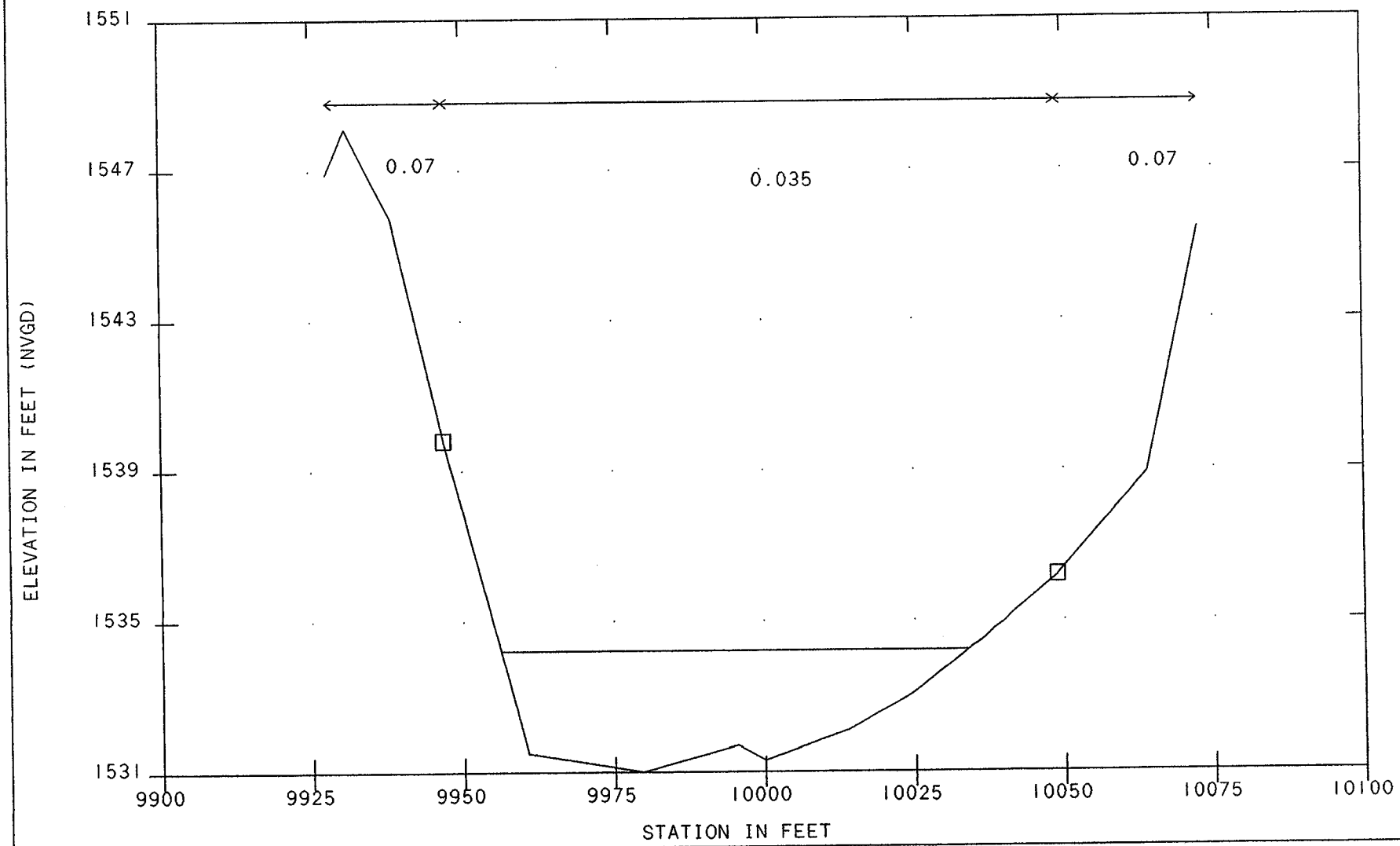

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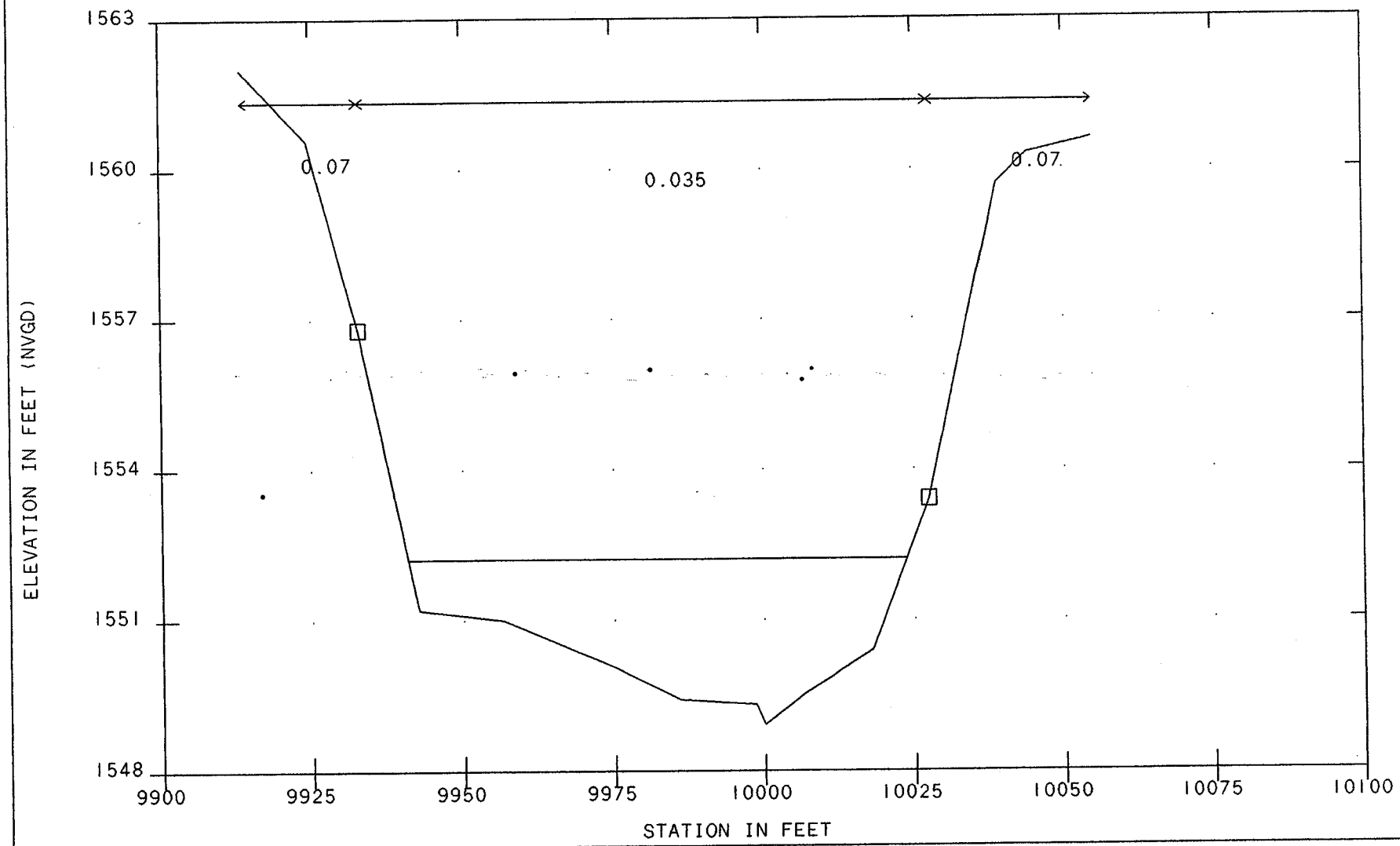

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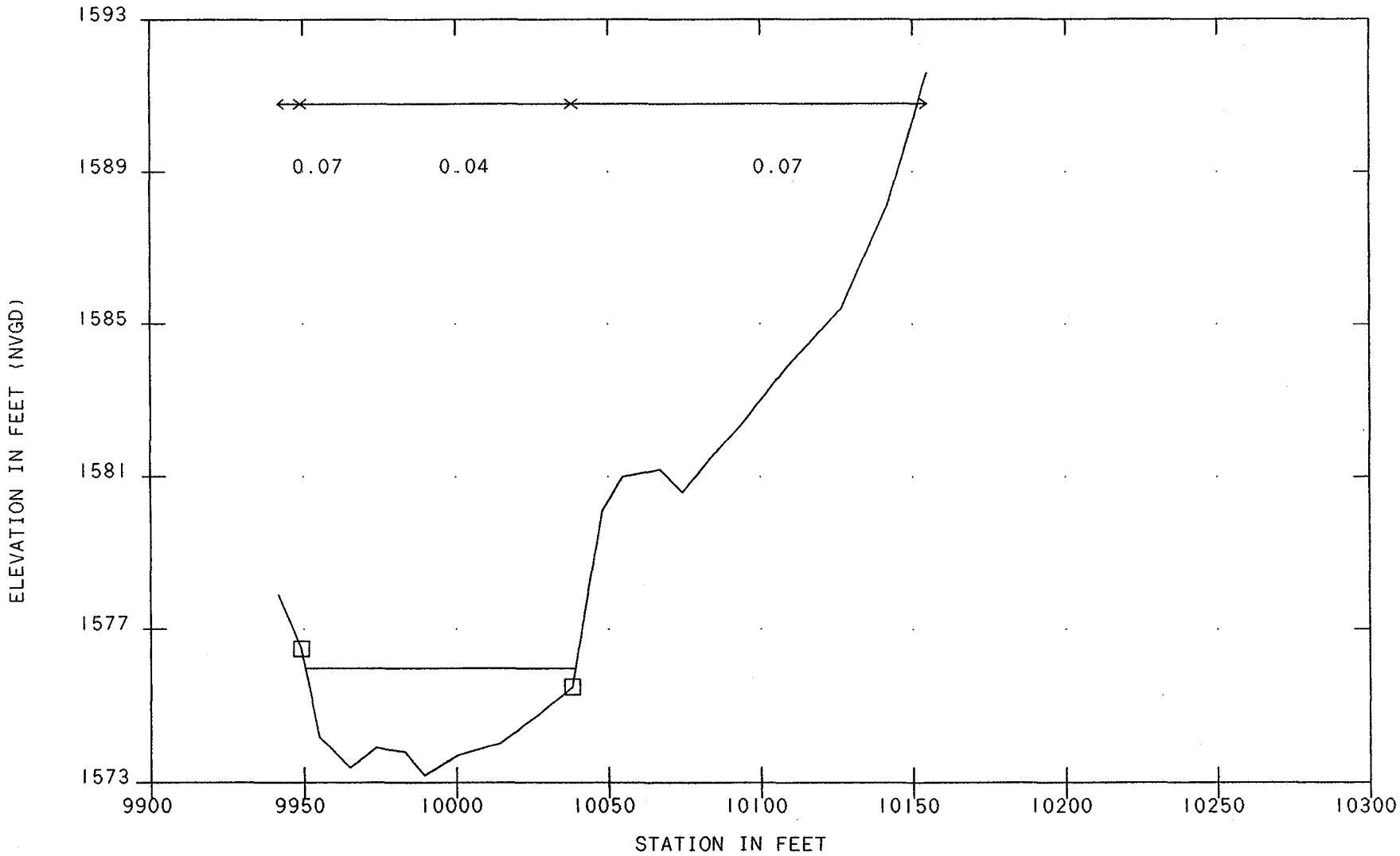

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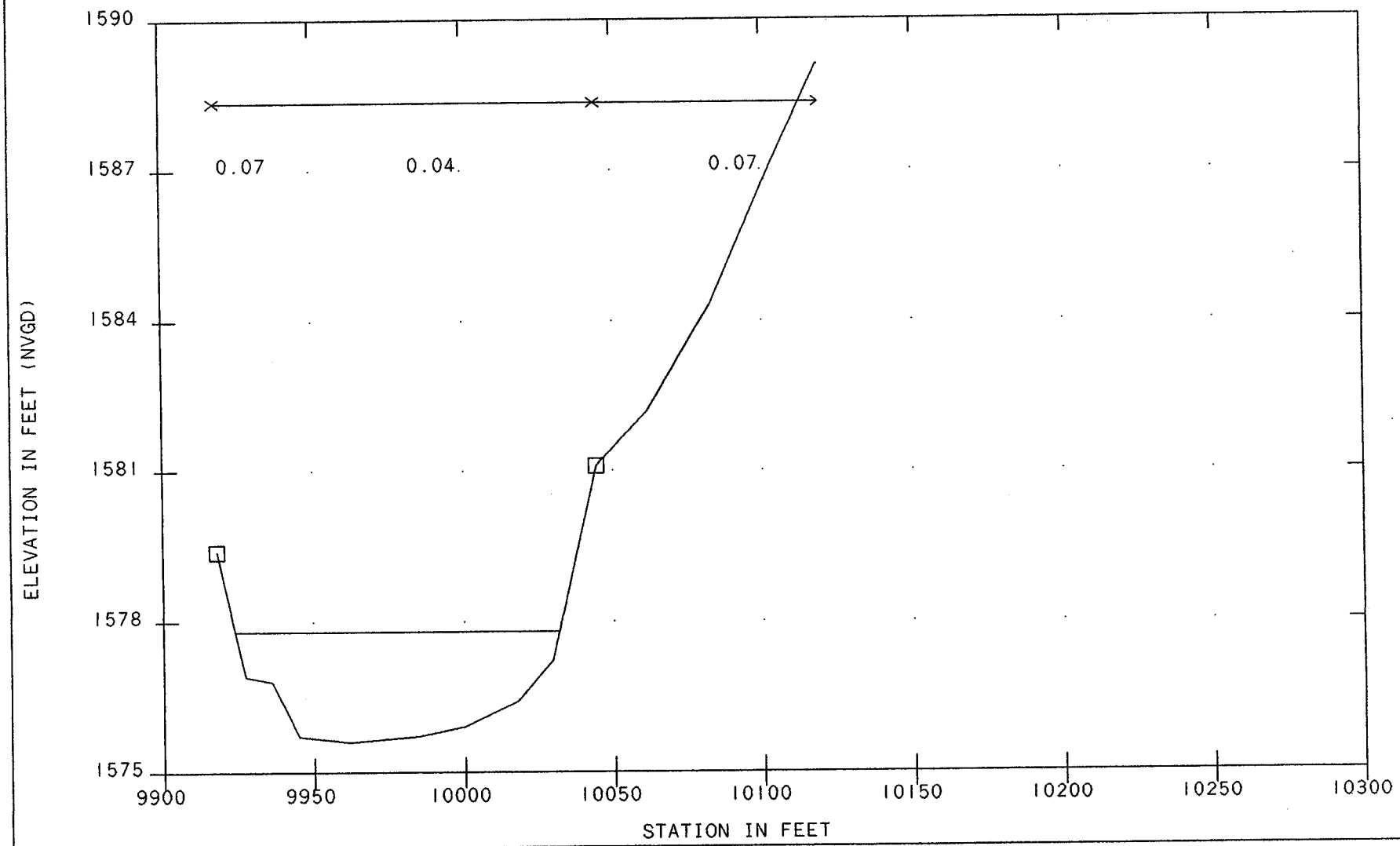

SECTION : .191

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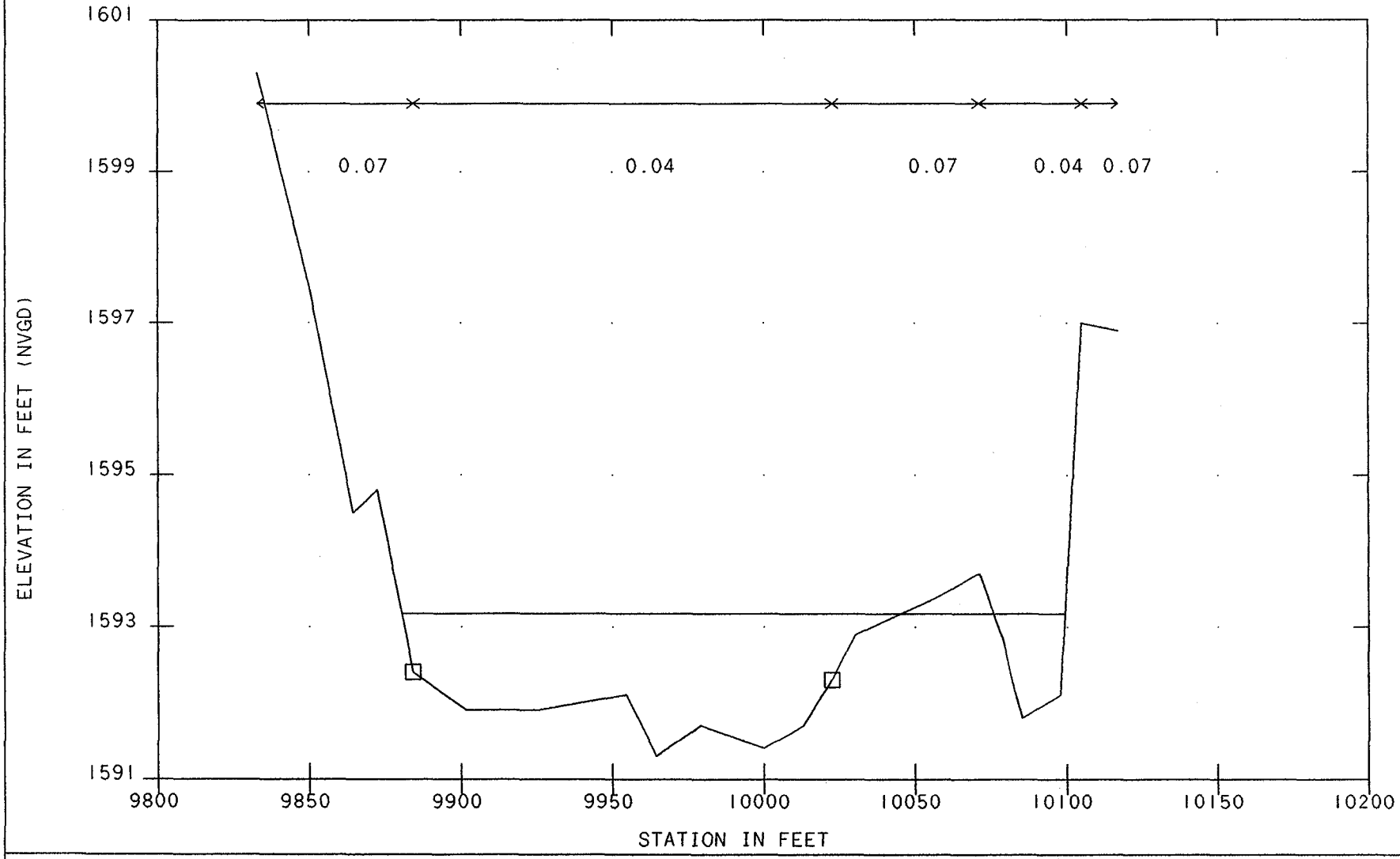

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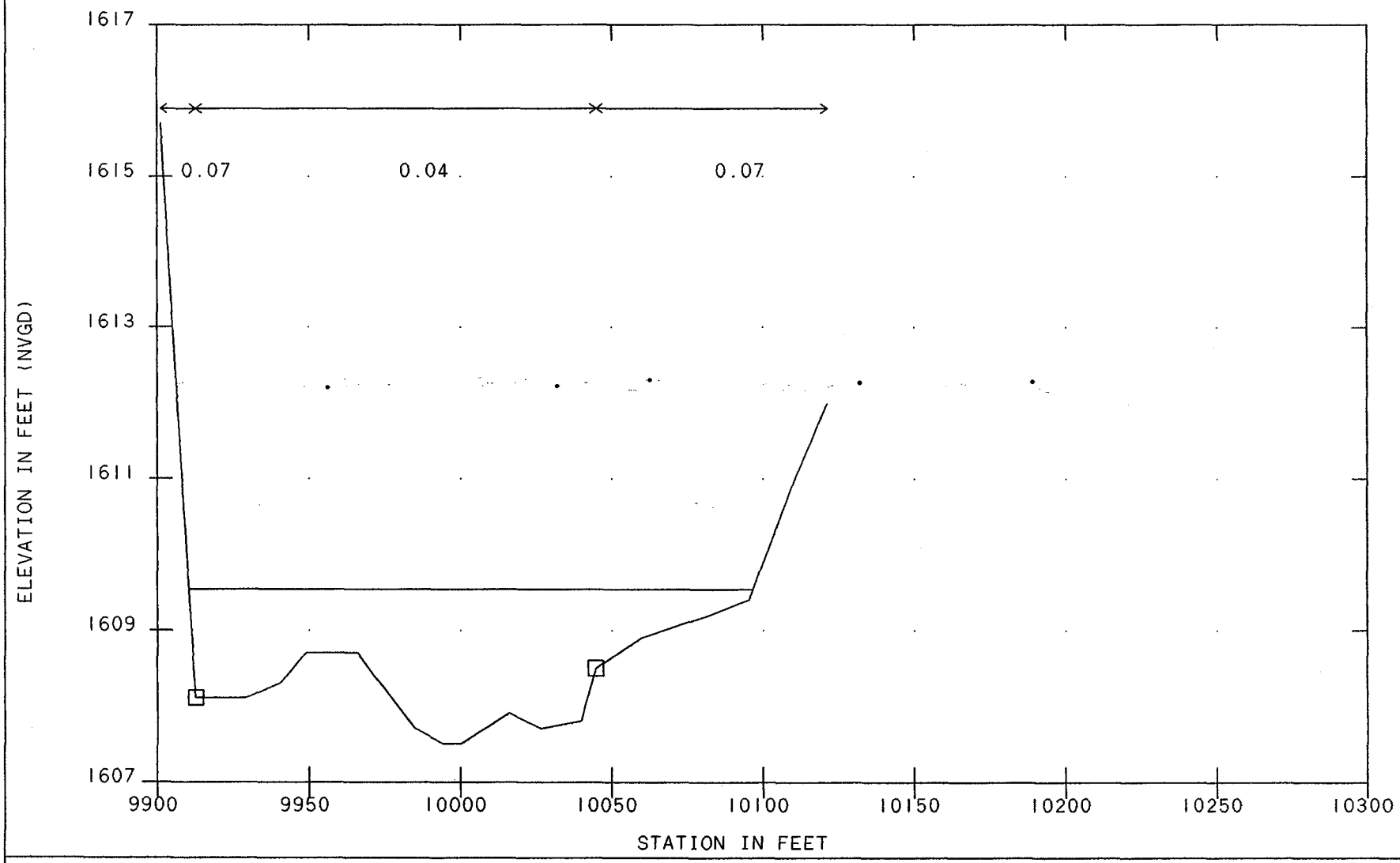

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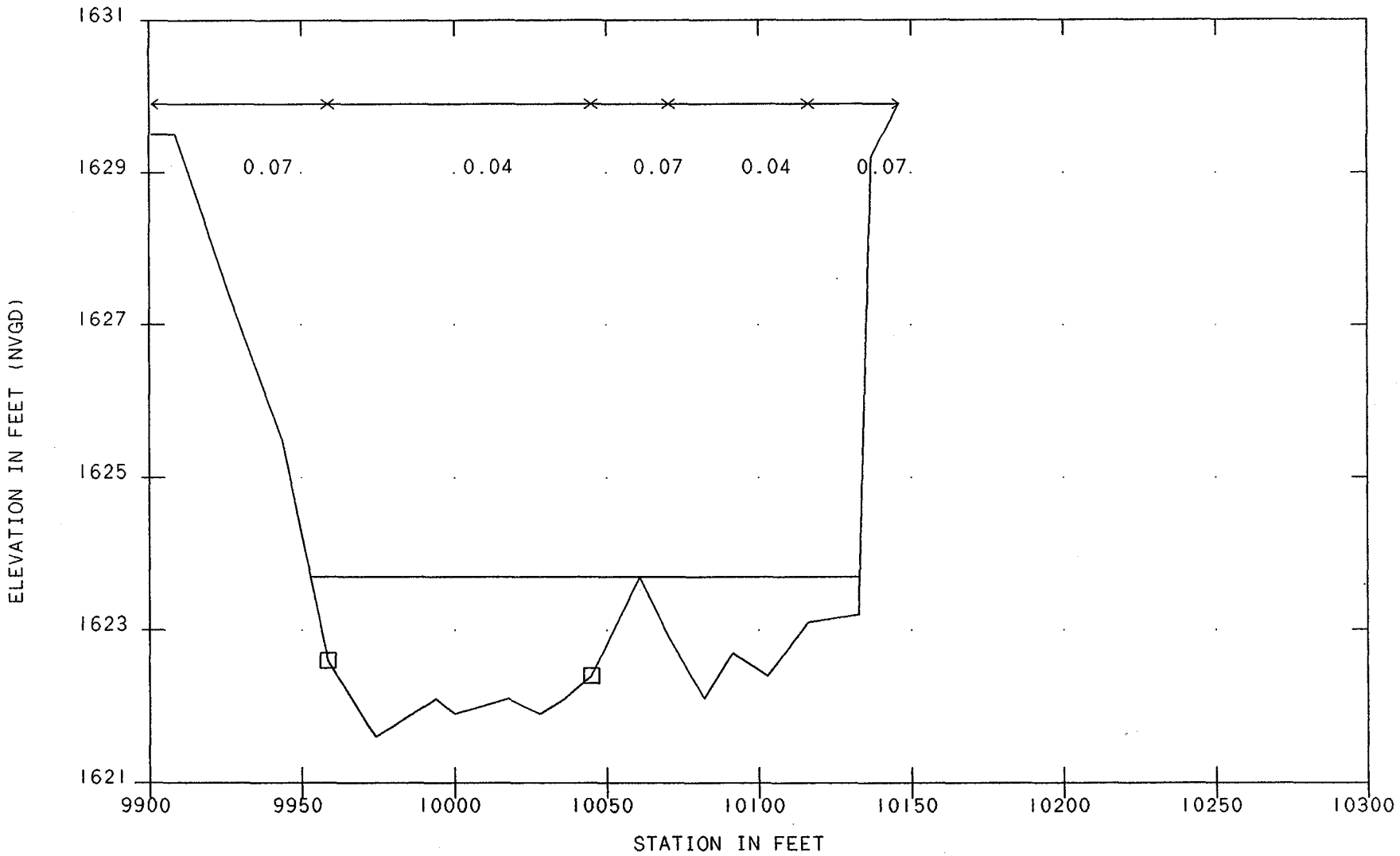

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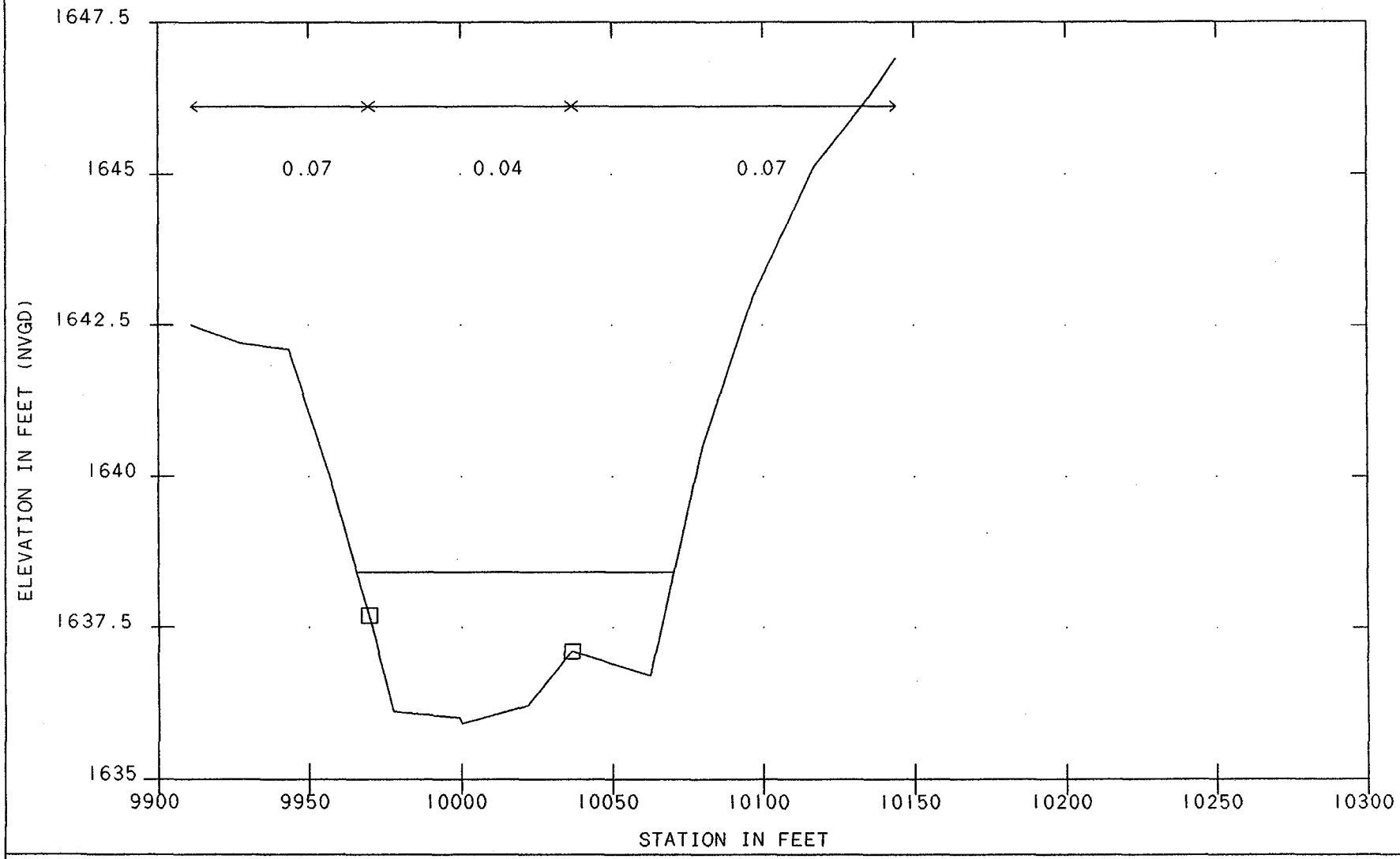

SECTION : .541

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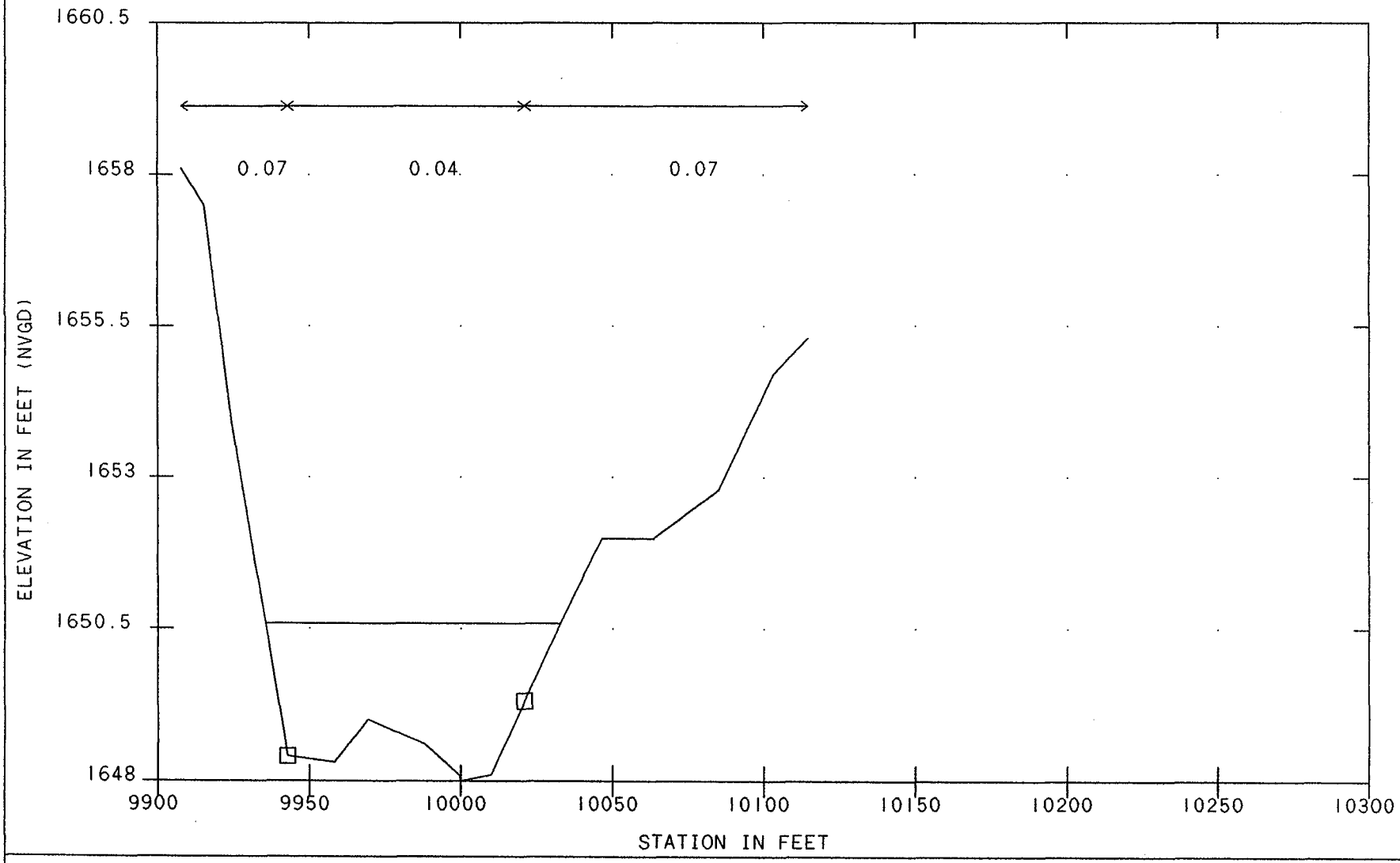

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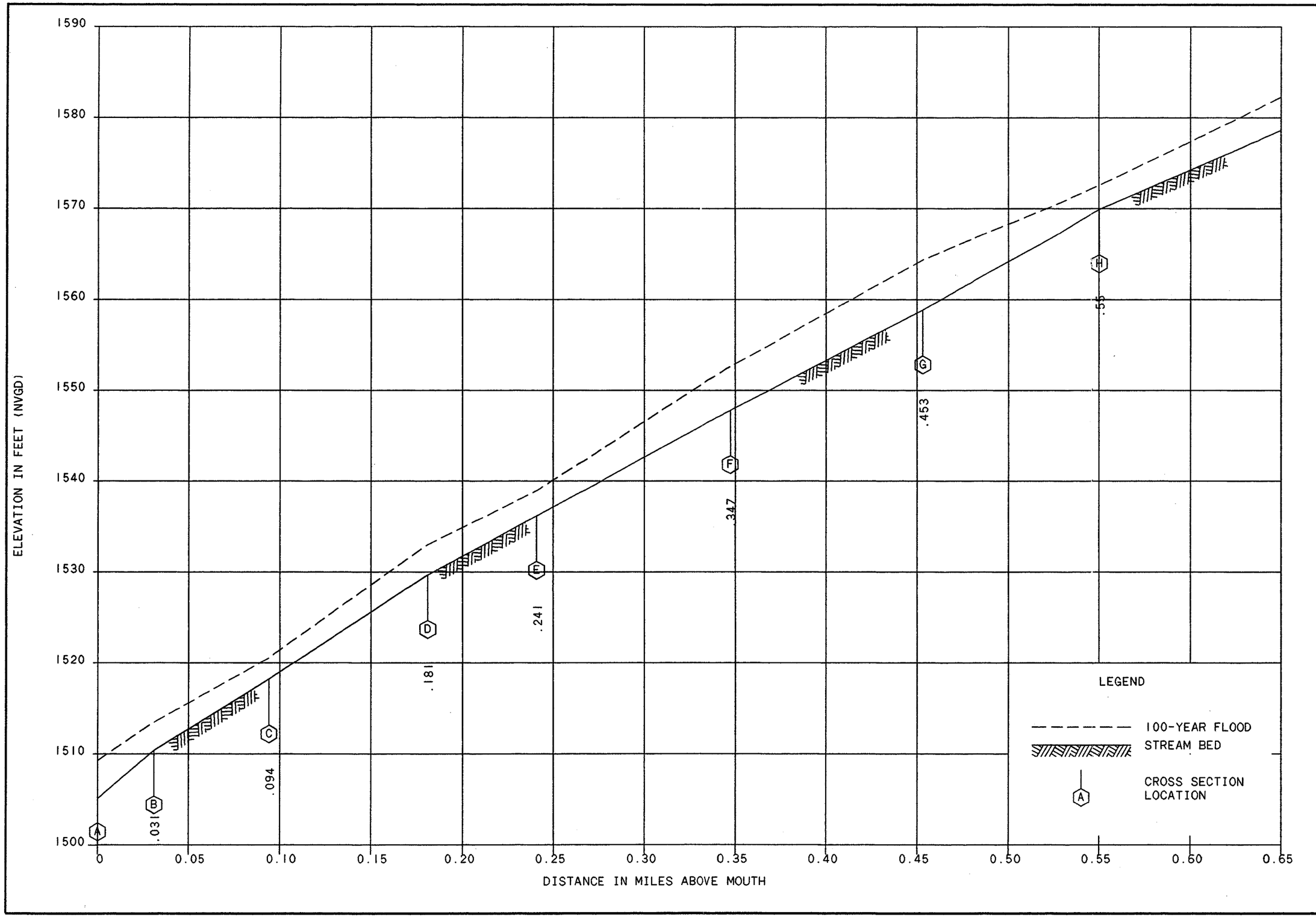
WASH I AUGUST 19, 1994

SECTION 4: FLOOD PROFILES



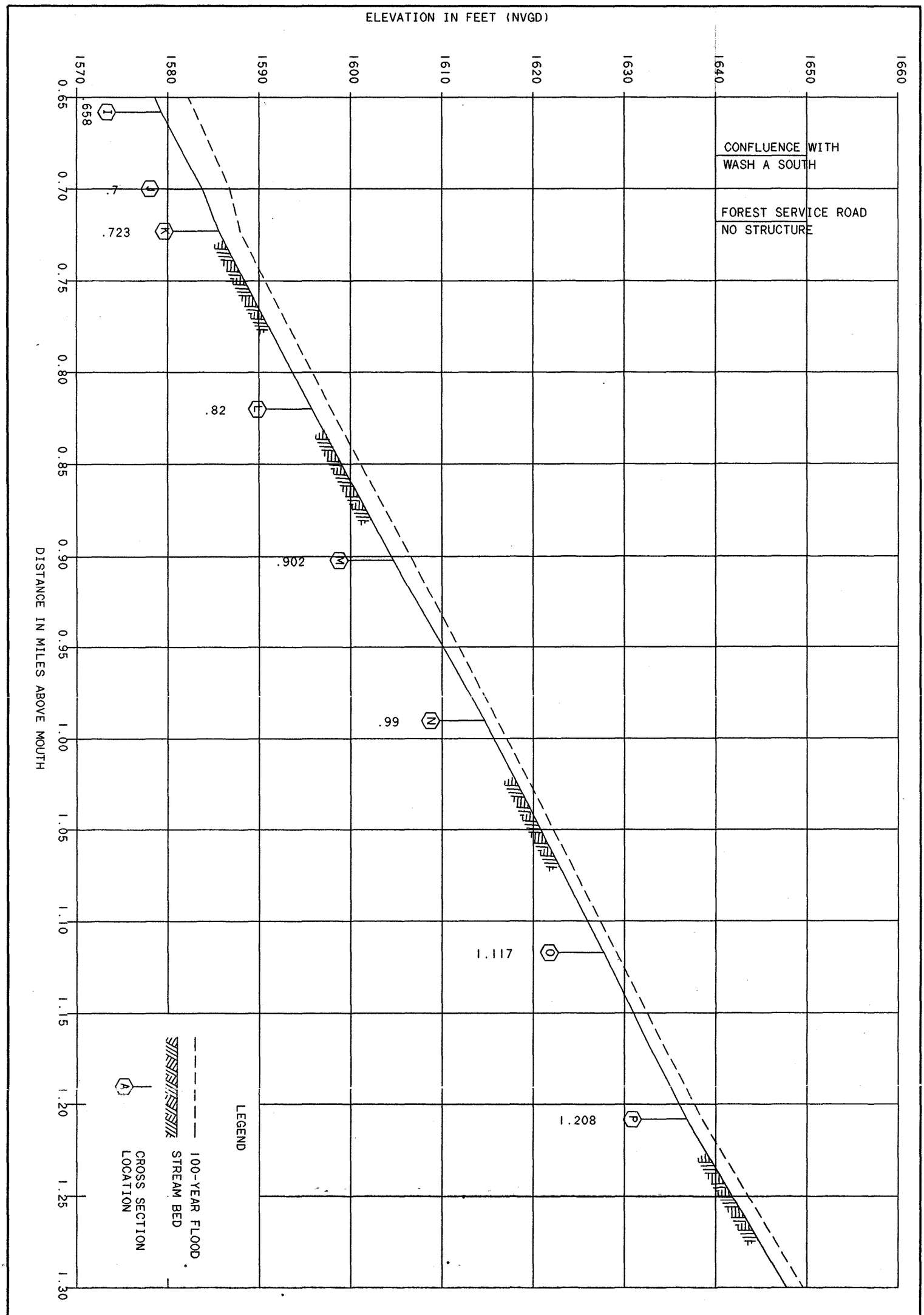
FLOOD PROFILES

WASH A

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

BURGESS & NIPPLE

ENGINEERS
ARCHITECTS

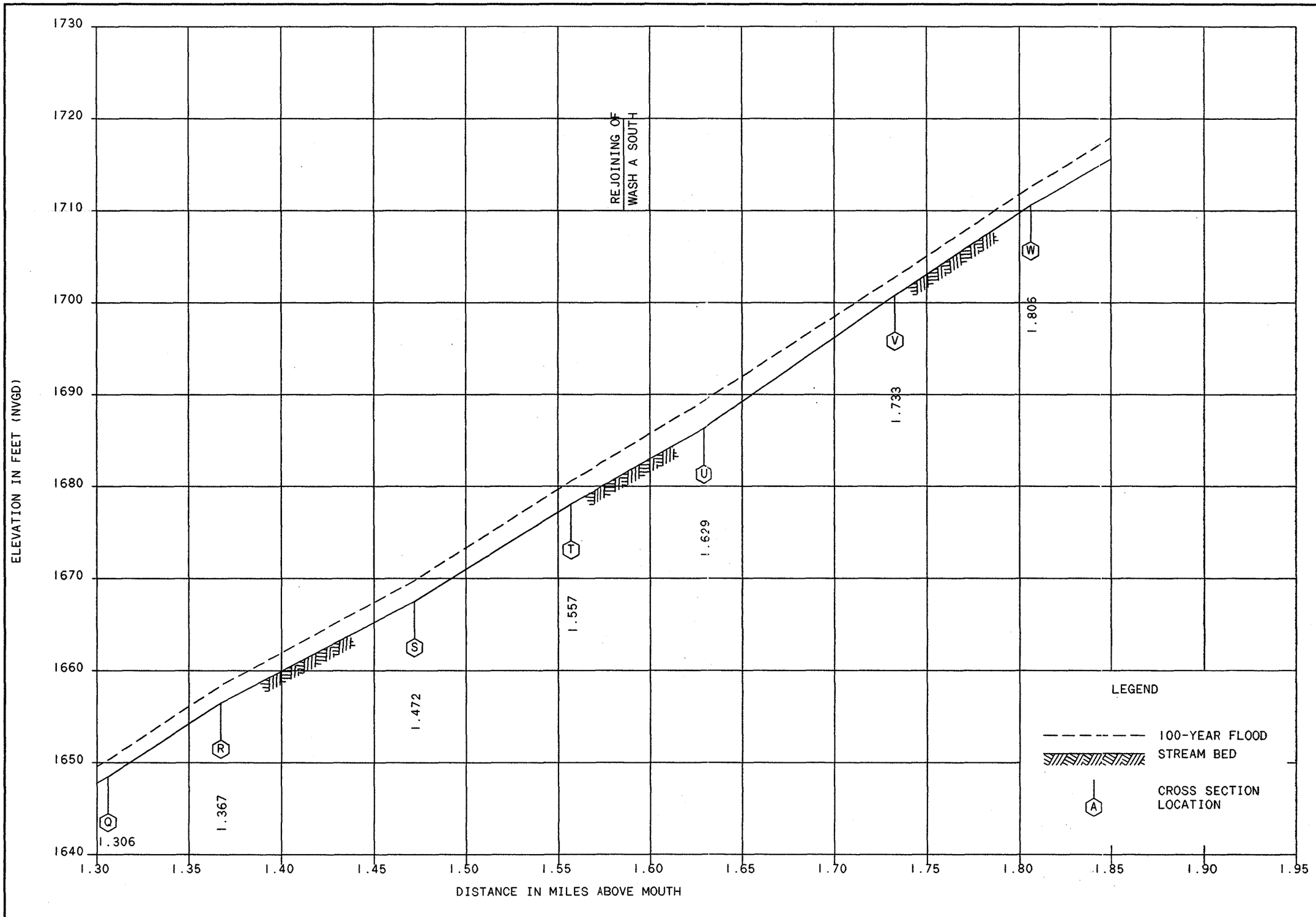


FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

BURGESS & NIPLE
ENGINEERS
ARCHITECTS

FLOOD PROFILES

WASH A



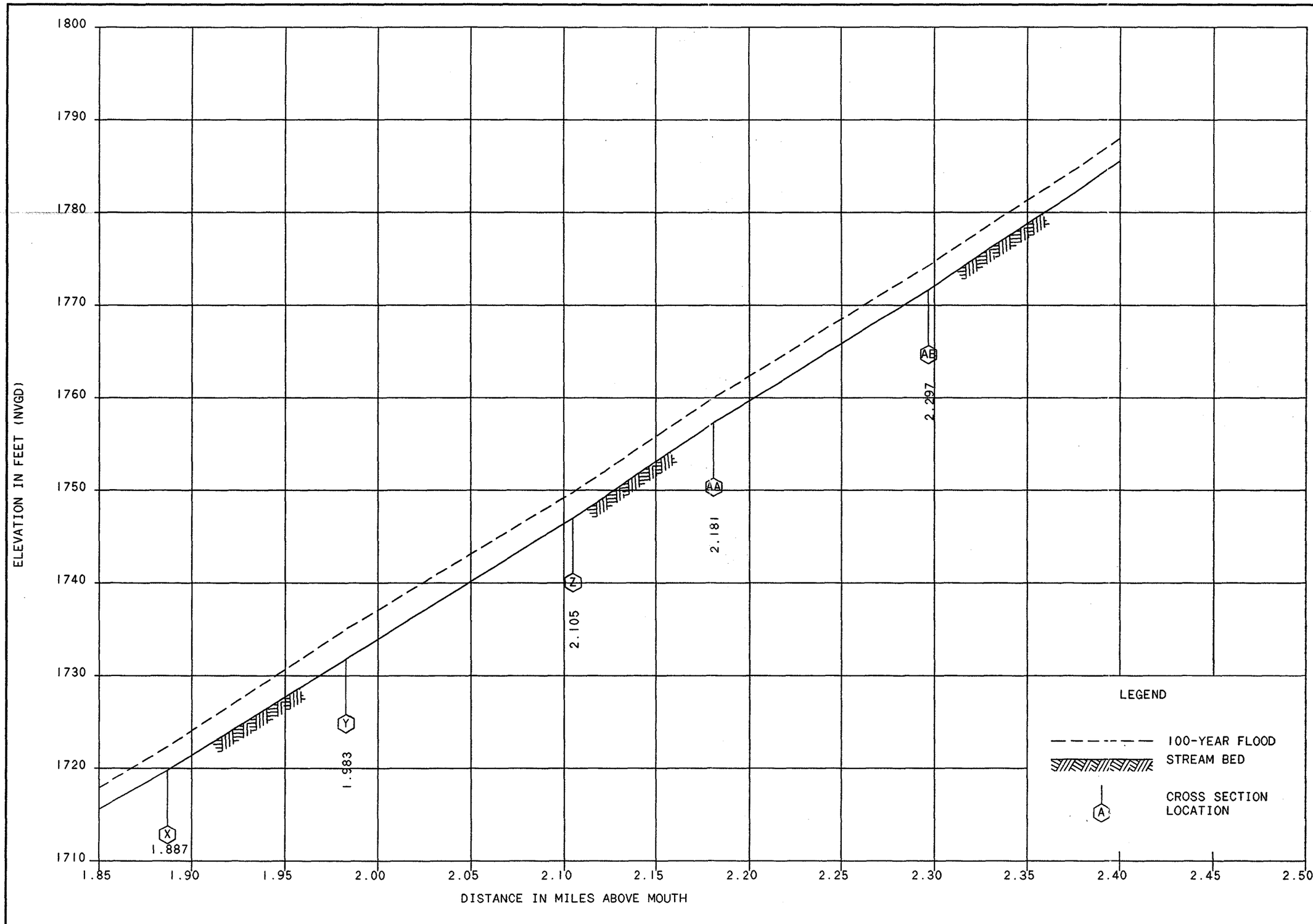
FLOOD PROFILES

WASH A

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

BURGESS & NIPLE

ENGINEERS ARCHITECTS



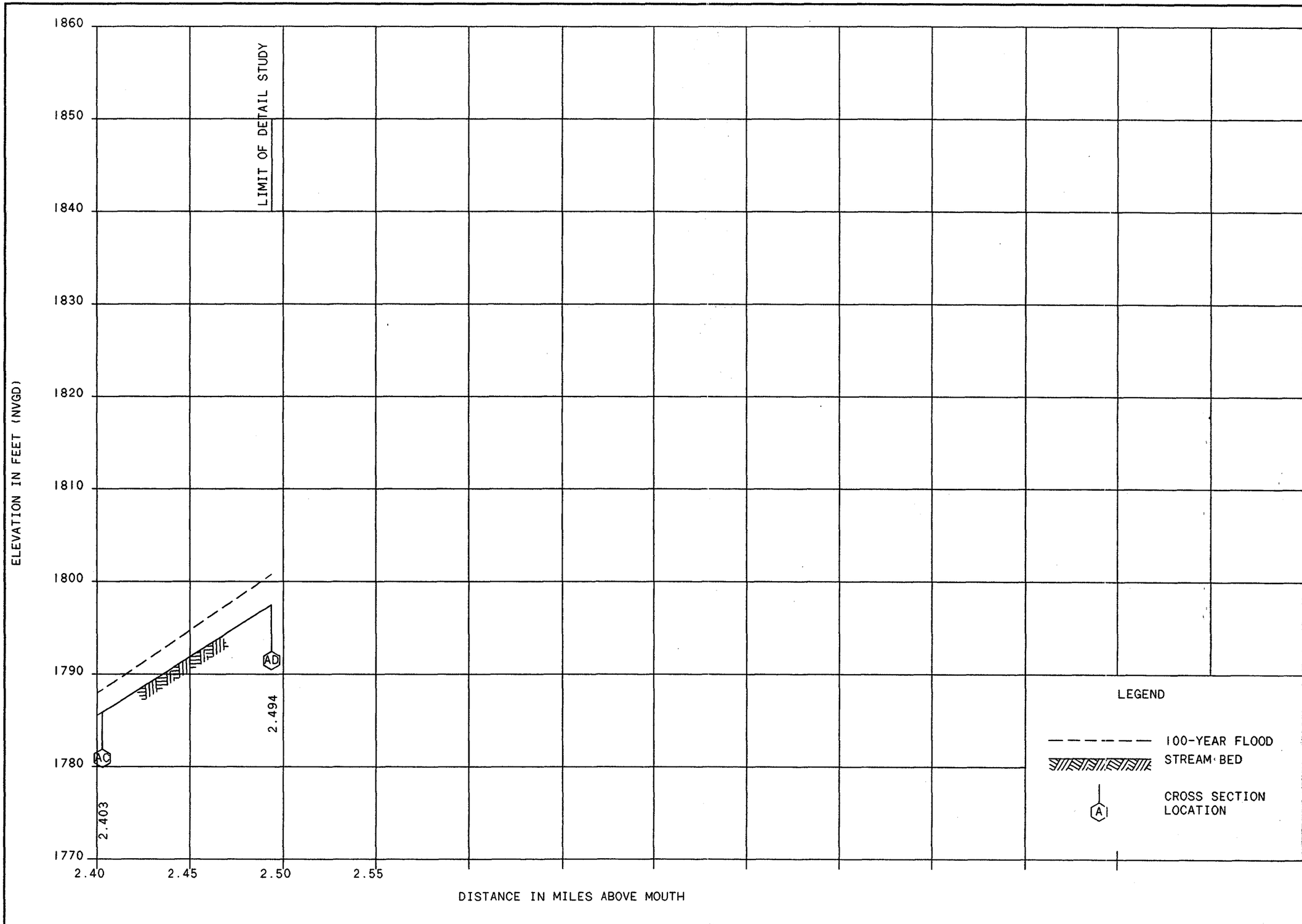
FLOOD PROFILES

WASH A

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

BURGESS & NIPLE

ENGINEERS ARCHITECTS



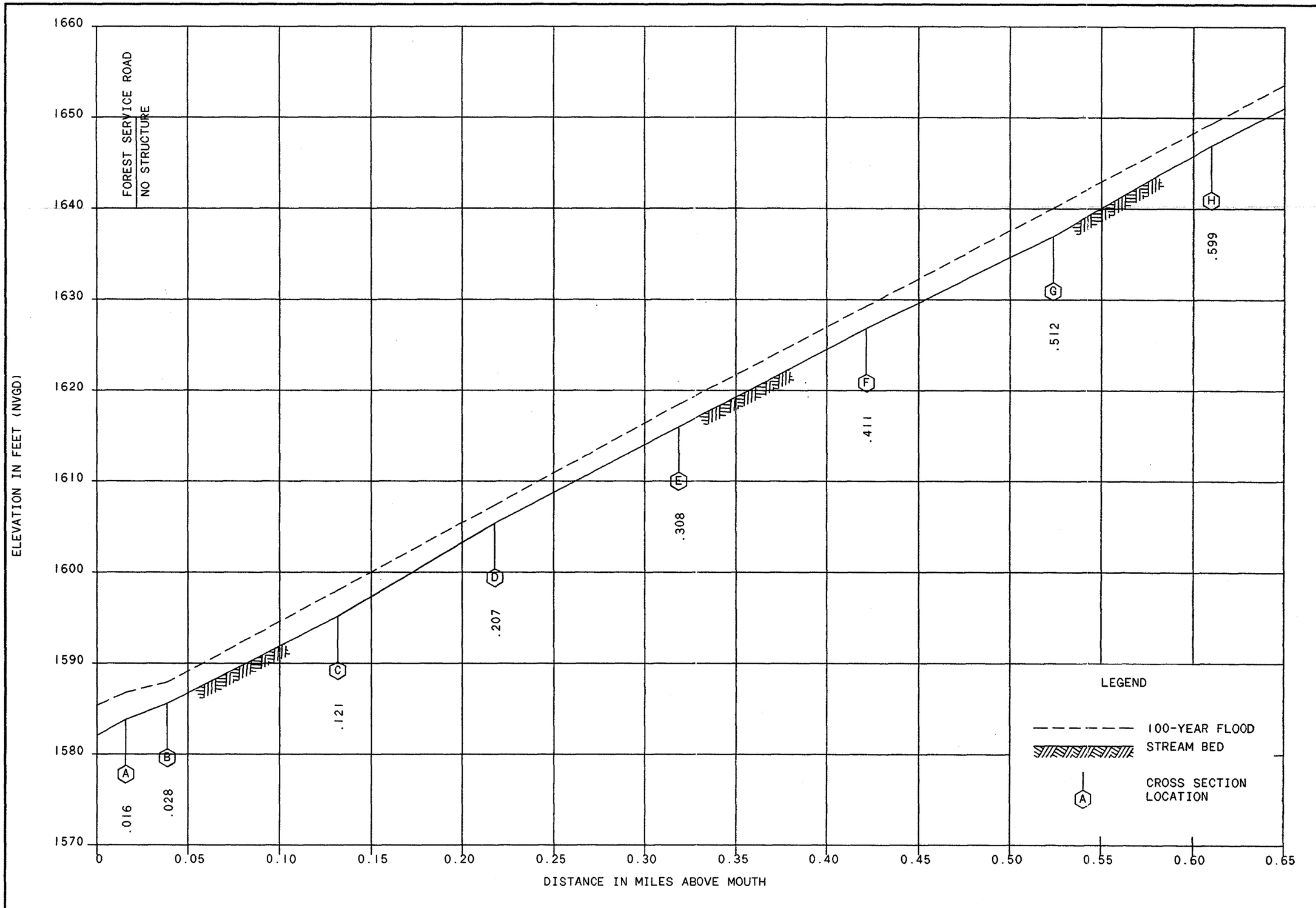
FLOOD PROFILES

WASH A

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

BURGESS & NIPLE

ENGINEERS ARCHITECTS



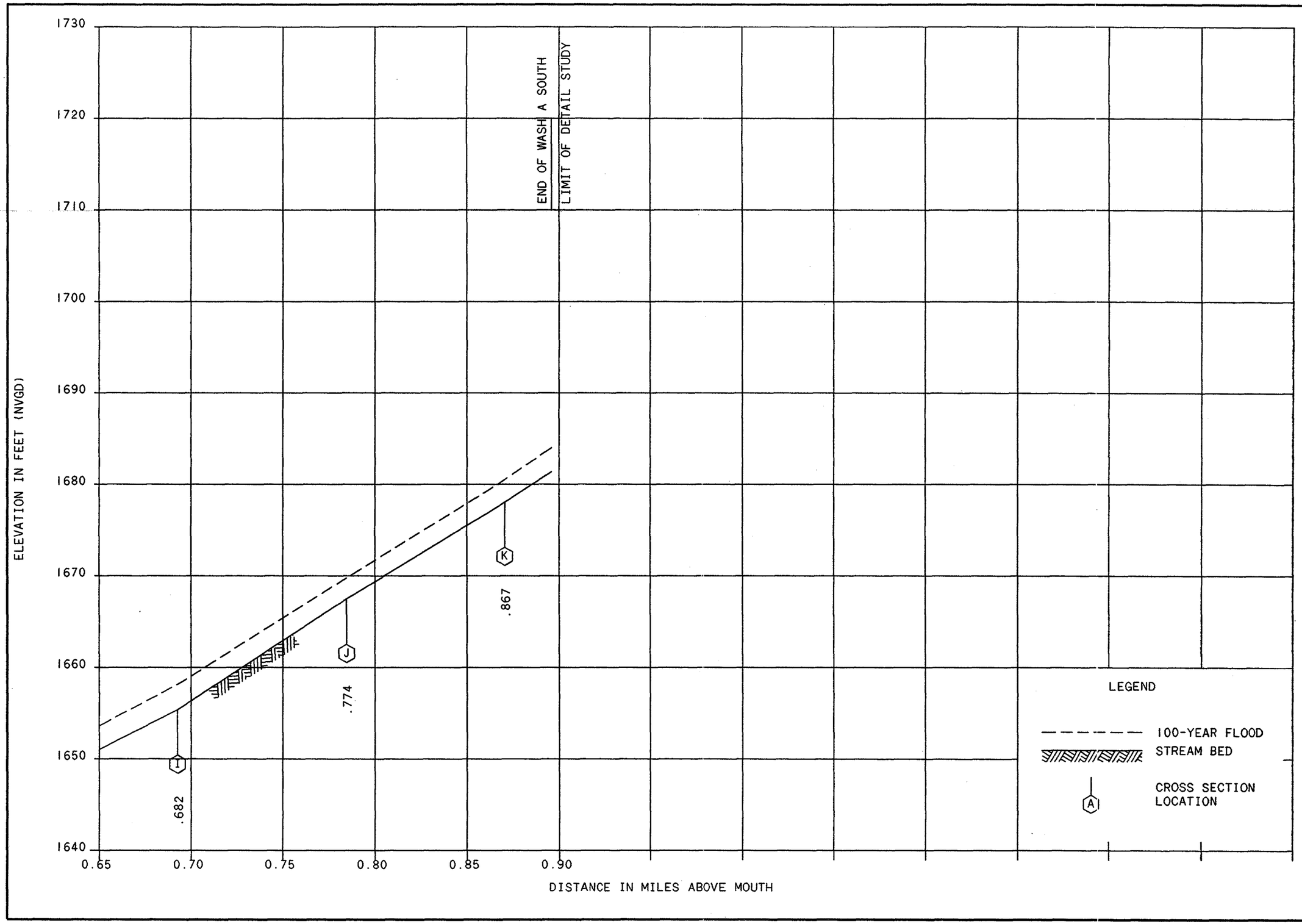
FLOOD PROFILES

WASH A SOUTH

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

BURGESS & NIPLE

ENGINEERS
ARCHITECTS



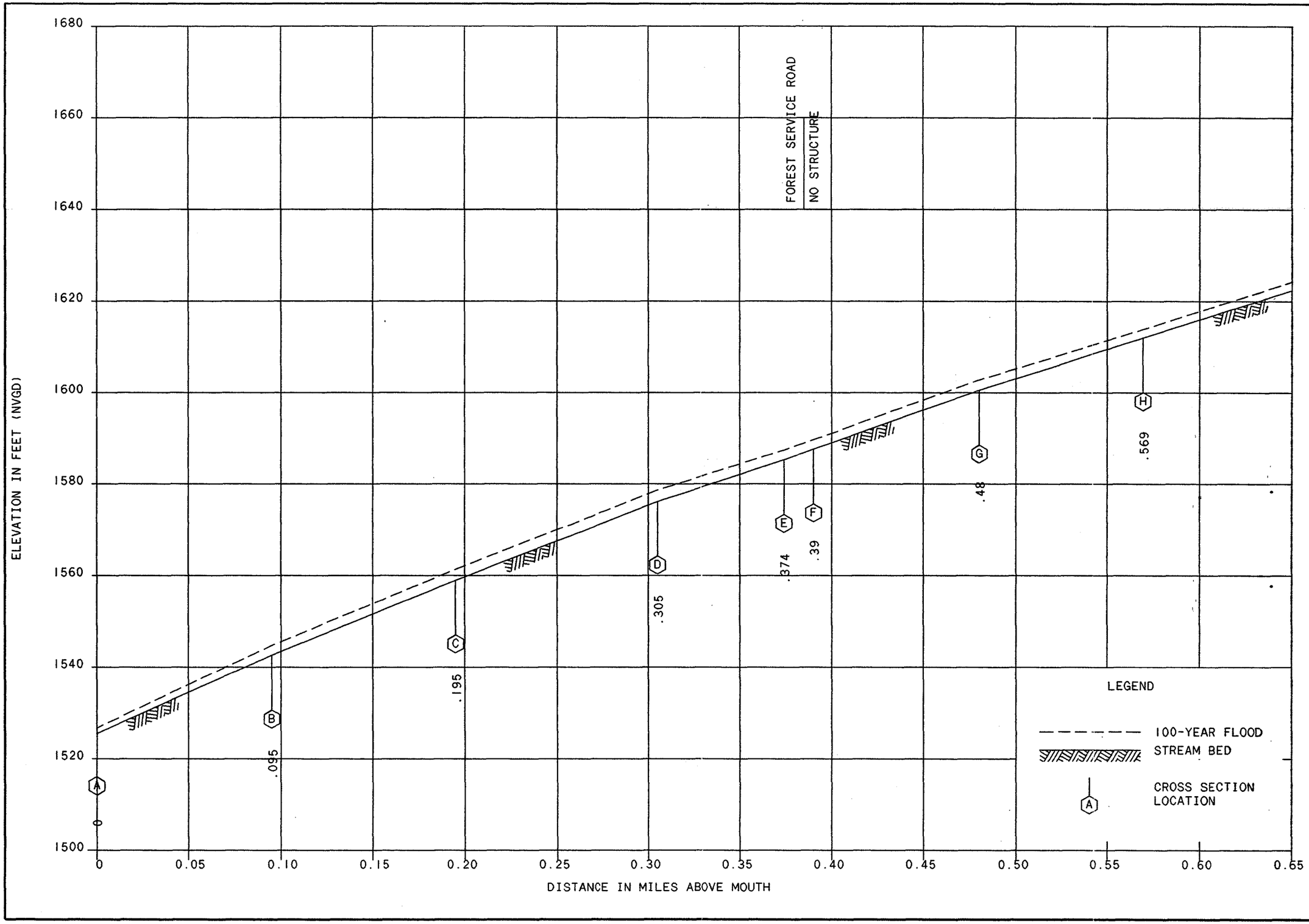
FLOOD PROFILES

WASH A SOUTH

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

BURGESS & NIPPLE

ENGINEERS ARCHITECTS



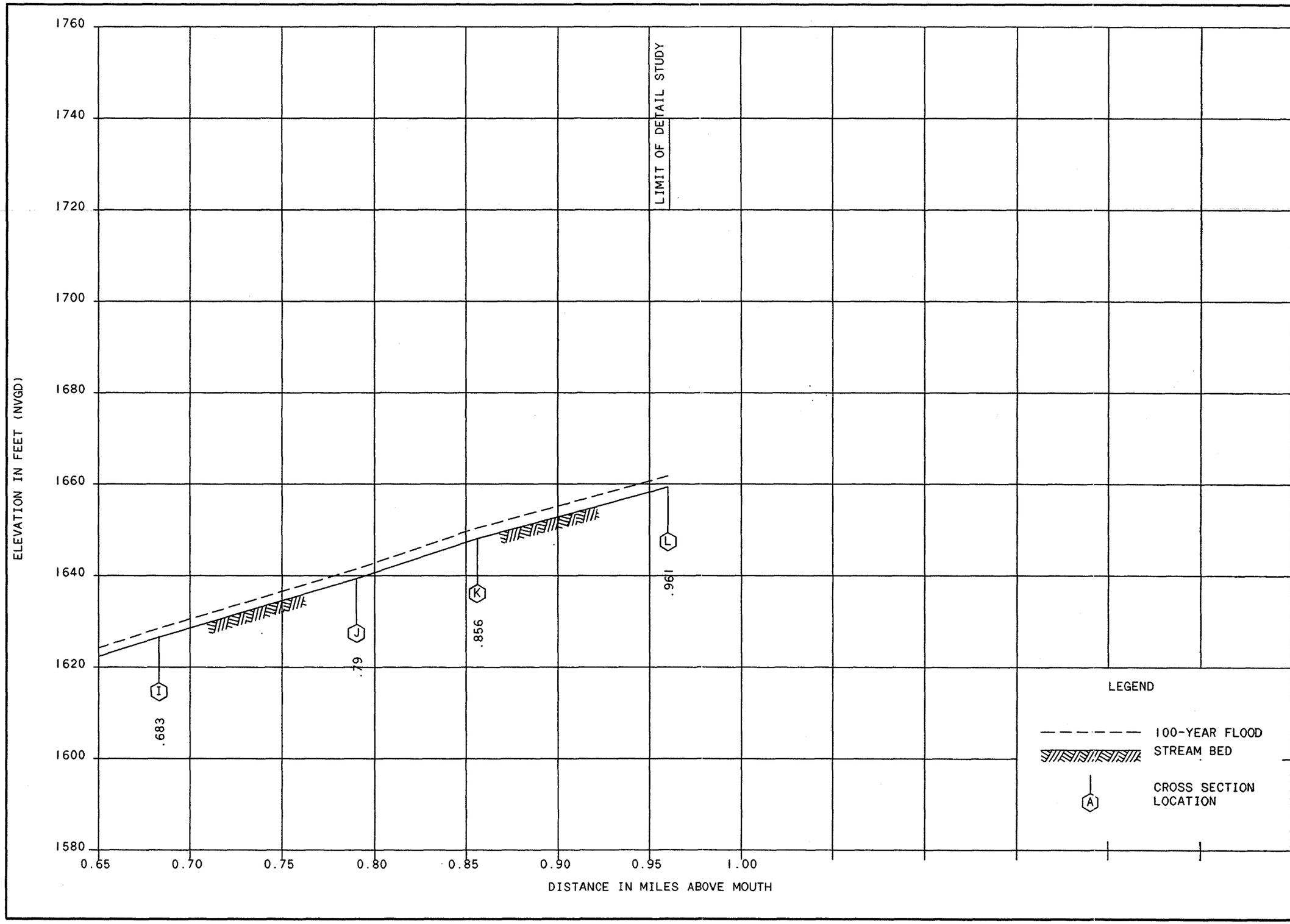
FLOOD PROFILES

WASH F

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

BURGESS & NIPLE

ENGINEERS ARCHITECTS



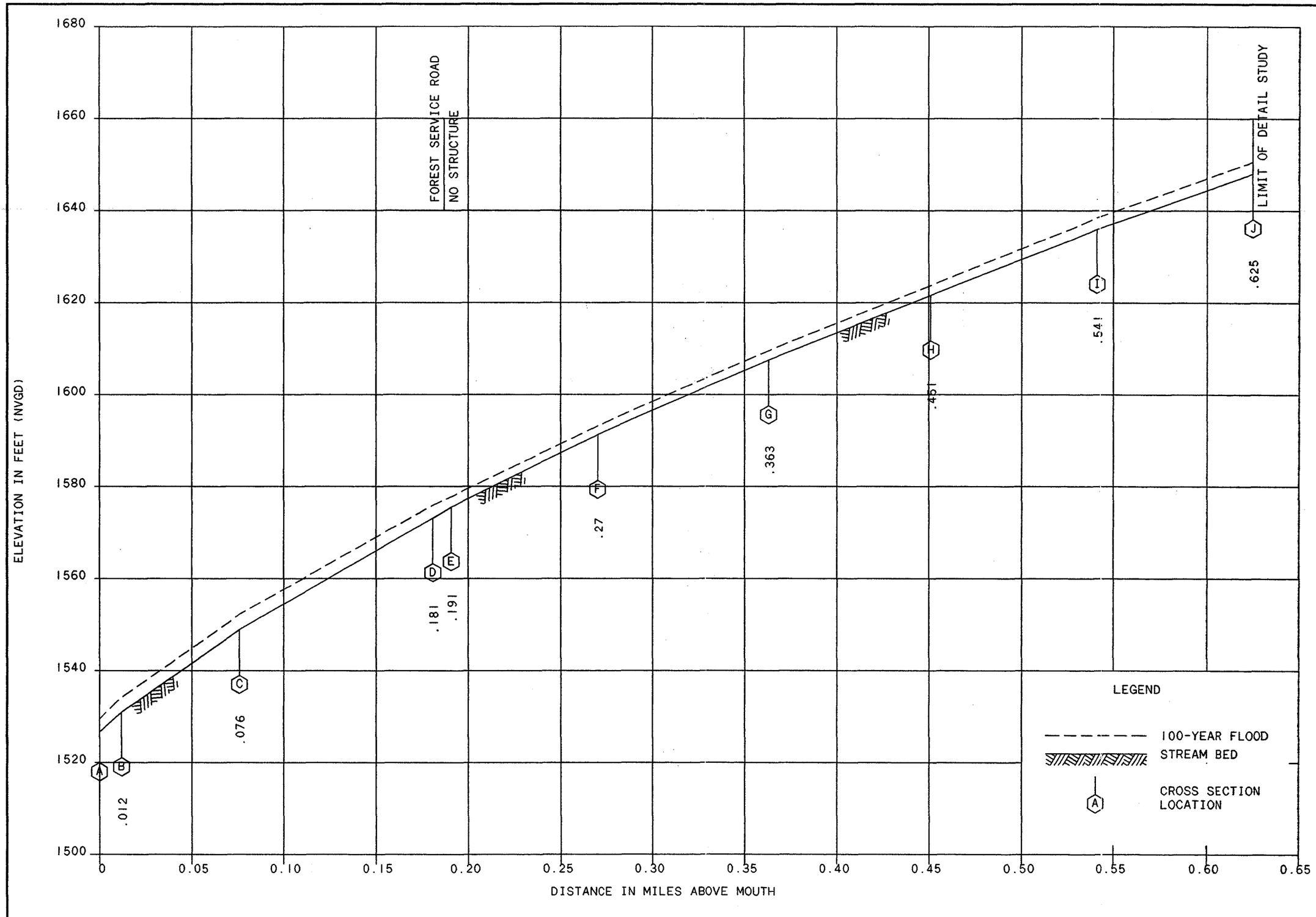
FLOOD PROFILES

WASH F

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

BURGESS & NIPLE

ENGINEERS ARCHITECTS



FLOOD PROFILES

WASH 1

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

BURGESS & NIPLE

ENGINEERS ARCHITECTS

SECTION 5: 100-YEAR FLOODED AREA TOPOGRAPHIC MAPS

SECTION 6: SUPERCRITICAL HEC-2 COMPUTER INPUT AND OUTPUT FILES

WASH A

```
1*****************************************                                    ***************************************
 *  HEC-2 WATER SURFACE PROFILES           *                                    *  U.S. ARMY CORPS OF ENGINEERS       *
 *                                         *                                    *  HYDROLOGIC ENGINEERING CENTER      *
 *  Version   4.6.2;  May 1991             *                                    *  609 SECOND STREET, SUITE D         *
 *                                         *                                    *  DAVIS, CALIFORNIA 95616-4687       *
 *  RUN DATE    19AUG94    TIME   09:41:44 *                                    *        (916) 756-1104               *
*****************************************                                    ***************************************


                                        X     X  XXXXXXX   XXXXX              XXXXX
                                        X     X  X        X     X            X     X
                                        X     X  X        X                        X
                                        XXXXXXX  XXXX     X          XXXXX    XXXXX
                                        X     X  X        X                  X
                                        X     X  X        X     X            X
                                        X     X  XXXXXXX   XXXXX             XXXXXXX
1
   19AUG94      09:41:44                                                                                    PAGE    1


                                                                                  THIS RUN EXECUTED 19AUG94    09:41:44
 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************


 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
 T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
 T3      WASH A                  L. CULLER - (602)244-8100
 T4      JOB 15183   PR15183\ETC\WASHA\SCWASHA.IH2   RUN  1
 T5      SUPERCRITICAL FLOW

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                   1        -1                                    1507

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      -1                  -1                                                                     15

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        42         1        43        26        51         4         8        53        54
      13        15        40

         A FLOW BREAKOUT OCCURS AT THIS SECTION.  FLOW EXITS VIA THE RIGHT SIDE.
         RATING CURVES FOR THIS SECTION AND THE WATERSHEDDIVIDE WERE DEVELOPED
         AND ADDED TOGETHER TO DETERMINE THAT APPROXIMATELY 210 CFS LEAVES
         WASH A.  150 CFS LEAVES BELOW THE SECTION AND 60 CFS LEAVES AT THE
         SECTION.  THEREFORE THE DISCHARGE FOR SECTION 2.494 HAS BEEN REDUCED
         FROM 1310 CFS TO 1250 CFS AND THE DISCHARGE FOR THE NEXT DOWNSTREAM
         SECTION 2.403 HAS BEEN REDUCED FROM 1310 CFS TO 1100 CFS. (SEE SPECIAL
         PROBLEM NO. 1A)

 QT        1      1250
 NC      .08       .06      .035       0.1       0.3
 X1    2.494        21    9976.7   10019.1       445       425       480
 GR   1801.5   9902.67    1801.5   9902.68    1801.5   9902.69    1801.5    9902.7    1801.0    9921.9
 GR   1799.7    9944.1    1800.4    9961.0    1799.5    9976.7    1798.6    9991.6    1798.6   10000.0
 GR   1798.8   10008.1    1799.8   10019.1    1799.8   10036.1    1800.1   10048.0    1799.5   10062.1
 GR   1799.0   10066.8    1797.5   10071.5    1799.0   10079.7    1799.6   10096.8    1800.0   10122.6
 GR   1800.2   10130.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0

 QT        1      1100
 NH        5       .07    9990.9      .035   10017.4       .07   10061.2       .04   10077.4       .07
 NH   10319.
1
   19AUG94      09:41:44                                                                                    PAGE    2

 X1    2.403        39    9990.9   10017.4       530       550       560
 GR   1788.4   9832.57    1788.4   9832.58    1788.4   9832.59    1788.4    9832.6    1788.0    9849.9
 GR   1787.9    9872.8    1787.6    9883.9    1786.6    9886.4    1787.5    9891.2    1787.5    9909.2
 GR   1786.5    9928.8    1786.1    9934.4    1787.0    9948.5    1787.4    9954.6    1788.0    9977.2
 GR   1787.6    9990.9    1786.8   10000.0    1786.0   10005.1    1785.9   10010.1    1787.4   10017.4
 GR   1787.8   10035.3    1787.5   10061.2    1786.3   10068.9    1787.7   10077.4    1787.8   10085.6
 GR   1786.1   10094.3    1787.8   10103.2    1787.6   10122.6    1787.6   10147.5    1788.2   10173.9
 GR   1788.6   10176.7    1787.5   10196.6    1788.5   10213.0    1789.3   10229.3    1789.2   10246.8
 GR   1788.4   10265.6    1788.6   10285.7    1789.1   10304.6    1789.8   10319.0       0.0       0.0

 NH        5       .08    9989.4      .035   10056.7       .07   10116.9       .04   10139.3       .07
 NH   10250.
 X1    2.297        25    9989.4   10056.7       625       575       612
 GR   1774.7   9924.09    1774.7    9924.1    1774.0    9941.4    1773.2    9961.6    1773.7    9979.3
 GR   1773.2    9983.0    1773.3    9989.4    1772.4    9994.2    1772.5   10000.0    1772.3   10010.2
 GR   1772.8   10016.7    1772.8   10037.5    1773.5   10056.7    1774.2   10081.6    1773.8   10104.5
 GR   1773.9   10116.9    1771.6   10121.2    1772.0   10130.7    1773.8   10139.3    1773.8   10150.4
 GR   1773.7   10173.1    1773.7   10193.1    1774.0   10215.8    1773.9   10234.7    1774.5   10250.0

 NH        5       .08    9815.9       .04    9840.0       .08    9967.8      .035   10016.8       .07
 NH   10139.
```

```
X1    2.181        39    9967.8   10016.8       390       370       401
GR   1760.8    9702.6    1760.8    9723.4    1761.0    9741.6    1761.3    9762.5    1761.4    9787.6
GR   1761.0    9815.9    1760.1    9821.8    1759.9    9836.1    1760.9    9840.0    1761.0    9855.3
GR   1760.8    9864.9    1759.3    9871.0    1760.1    9878.6    1759.9    9880.5    1759.8    9888.1
GR   1758.6    9892.5    1759.6    9897.4    1759.4    9914.7    1759.8    9932.3    1759.8    9941.7
GR   1758.8    9944.6    1758.9    9953.8    1758.9    9967.8    1757.8    9973.5    1757.8    9981.3
GR   1758.5    9990.7    1757.5    9997.2    1757.3   10000.0    1757.3   10012.0    1758.8   10016.8
GR   1758.8   10030.3    1758.7   10053.2    1758.9   10064.8    1758.6   10086.2    1759.1   10100.2
GR   1759.6   10108.2    1760.2   10112.6    1760.5   10135.0    1760.6   10139.0       0.0       0.0

NH        5       .08    9815.9       .04    9840.0       .08    9967.8      .035   10016.8       .07
NH   10139.
X1    2.181        39    9967.8   10016.8       390       370       401
GR   1760.8    9702.6    1760.8    9723.4    1761.0    9741.6    1761.3    9762.5    1761.4    9787.6
GR   1761.0    9815.9    1760.1    9821.8    1759.9    9836.1    1760.9    9840.0    1761.0    9855.3
GR   1760.8    9864.9    1759.3    9871.0    1760.1    9878.6    1759.9    9880.5    1759.8    9888.1
GR   1758.6    9892.5    1759.6    9897.4    1759.4    9914.7    1759.8    9932.3    1759.8    9941.7
GR   1758.8    9944.6    1758.9    9953.8    1758.9    9967.8    1757.8    9973.5    1757.8    9981.3
GR   1758.5    9990.7    1757.5    9997.2    1757.3   10000.0    1757.3   10012.0    1758.8   10016.8
GR   1758.8   10030.3    1758.7   10053.2    1758.9   10064.8    1758.6   10086.2    1759.1   10100.2
GR   1759.6   10108.2    1760.2   10112.6    1760.5   10135.0    1760.6   10139.0       0.0       0.0
```

A SPLIT FLOW CONDITION OCCURS JUST DOWNSTREAM OF SECTION 2.105.
FLOW EXITS INTO A SMALL WASH WHICH ENDS
IN WASH A CHANNEL JUST DOWNSTREAM.
RATING CURVES FOR THIS SECTION AND THE SMALL WASH WERE DEVELOPEDED AND
ADDED TOGETHER TO DETERMINE THAT APPROXIMATELY 60 CFS LEAVES AT THIS
LOCATION. DUE TO THE DISCHARGE BEING LESS THAN 6 PERCENT OF THE TOTAL
FLOW THERE WAS NO FLOW REDUCTION IN WASH A DISCHARGE. (SEE SPECIAL
PROBLEM NO. 2A)


```
NC      .08       .07      .035       0.1       0.3
X1    2.105        25    9989.7   10060.7       675       655       644
GR   1751.0    9826.6    1750.9    9849.4    1749.6    9894.0    1748.9    9914.6    1749.0    9944.2
GR   1749.2    9971.3    1748.9    9989.7    1747.0   10000.0    1748.9   10010.4    1749.2   10024.4
GR   1748.9   10030.7    1747.7   10034.1    1748.3   10041.7    1749.1   10060.7    1748.5   10078.6
GR   1748.2   10090.7    1748.8   10097.9    1749.3   10106.8    1748.7   10135.7    1749.2   10159.0
GR   1749.0   10175.1    1749.2   10190.0    1748.4   10195.3    1749.5   10209.2    1750.2   10224.0

NH        6       .07    9874.2       .04    9923.5       .07    9988.0      .035   10018.5       .07
NH   10249.       .04   10348.6
X1    1.983        42    9988.0   10018.5       525       505       507
GR   1737.3    9676.1    1738.1    9695.6    1737.1    9713.9    1737.9    9725.1    1738.0    9741.3
GR   1736.5    9761.2    1735.9    9786.6    1734.9    9807.5    1734.0    9818.6    1733.3    9828.2
GR   1734.7    9837.9    1733.9    9850.9    1733.8    9862.6    1734.1    9874.2    1733.9    9883.6
GR   1731.8    9889.8    1733.5    9895.3    1734.5    9910.0    1735.2    9923.5    1735.0    9944.4
GR   1734.7    9946.0    1734.4    9963.1    1733.5    9974.9    1734.2    9988.0    1732.7    9996.9
GR   1732.7   10000.0    1733.1   10013.4    1734.1   10018.5    1734.7   10031.5    1733.5   10041.3
GR   1734.2   10045.0    1734.7   10074.2    1735.6   10112.9    1735.5   10154.9    1735.9   10184.5
GR   1736.1   10217.0    1735.5   10227.4    1736.7   10249.0    1736.2   10280.8    1736.5   10306.2
GR   1736.3   10327.7    1736.6   10348.6

NH        7       .07    9644.0       .04    9675.2       .07    9860.0       .04    9886.7       .07
NH    9958.2      .035   10070.3       .07   10140.5
X1    1.887        39    9958.2   10070.3       415       400       428
GR   1723.7    9561.7    1723.5    9588.3    1723.2    9613.8    1722.6    9644.0    1719.8    9651.4
GR   1720.1    9657.0    1721.2    9661.7    1720.1    9668.3    1721.4    9675.2    1721.5    9689.8
GR   1721.4    9692.3    1721.4    9709.0    1722.1    9729.6    1722.3    9755.5    1722.4    9785.4
GR   1722.3    9810.3    1721.9    9832.1    1721.9    9846.2    1722.0    9860.0    1721.8    9872.4
GR   1721.0    9876.3    1721.2    9882.6    1722.2    9886.7    1722.2    9905.6    1722.1    9936.4
GR   1722.6    9958.2    1721.7    9974.6    1721.1    9988.8    1721.2   10000.0    1721.5   10017.5
GR   1721.7   10039.0    1721.7   10060.4    1722.0   10070.3    1721.5   10082.8    1722.4   10091.5
GR   1721.8   10103.3    1721.7   10116.2    1722.6   10127.2    1722.9   10140.5
```

A MINOR FLOW BREAKOUT OCCURS AT THE LEFT END OF SECTION 1.806. THE
ESTIMATED BREAKOUT FLOW IS SMALL AND THE FLOW IN WASH A IS NOT REDUCED.
(SEE SPECIAL PROBLEM NO. 3A)

```
NH        7       .07    9792.9       .04    9818.3       .07    9915.1       .04    9941.6       .07
NH    9977.5      .035   10043.9       .07   10088.2
X1    1.806        39    9977.5   10043.9       385       370       385
GR   1712.4   9726.18    1712.4   9726.19    1712.4    9726.2    1712.2    9739.4    1711.9    9750.6
GR   1711.5    9765.2    1711.7    9775.0    1712.1    9784.7    1712.1    9792.9    1711.6    9797.0
GR   1710.9    9801.7    1710.6    9804.9    1710.6    9809.6    1711.1    9813.4    1712.4    9818.3
GR   1712.3    9835.0    1712.0    9860.5    1712.2    9881.2    1712.1    9897.9    1711.8    9915.1
GR   1711.5    9927.1    1711.7    9933.2    1711.1    9933.9    1711.8    9941.6    1712.6    9953.3
GR   1712.6    9966.9    1712.5    9977.5    1712.0    9980.8    1710.8    9984.5    1710.8    9992.7
GR   1710.9    9999.9    1711.1   10000.0    1711.2   10007.9    1711.1   10017.5    1711.8   10029.3
GR   1712.6   10043.9    1713.0   10058.8    1713.0   10076.0    1713.1   10088.2
```



```
NC      .07       .07      .035       0.1       0.3
NH        5       .07    9793.3       .04    9851.5       .07    9984.3      .035   10032.8       .07
NH   10115.
X1    1.733        23    9984.3   10032.8       490       510       549
GR   1702.9   9757.59    1702.9    9757.6    1702.3    9775.1    1701.5    9793.3    1701.4    9803.8
GR   1701.0    9810.5    1700.8    9821.9    1701.1    9835.8    1701.7    9851.5    1701.9    9871.2
GR   1701.7    9894.3    1702.2    9927.6    1702.4    9945.8    1703.1    9969.2    1702.9    9984.3
GR   1702.3    9995.3    1701.6   10000.0    1702.3   10016.3    1702.7   10032.8    1703.8   10056.4
GR   1704.5   10073.0    1704.3   10092.7    1703.6   10115.0

NC      .08       .07      .035       0.1       0.3
NH        5       .08    9976.1      .035   10024.9       .07   10290.3       .04   10306.4       .07
```

```
NH   10403.
X1    1.629        42    9976.1   10024.9       415       330       380
GR   1691.0    9776.0    1691.0    9795.8    1689.7    9815.3    1689.5    9825.7    1690.1    9853.6
GR   1689.5    9883.0    1689.8    9905.9    1689.3    9922.9    1688.3    9941.1    1689.2    9957.0
GR   1689.4    9976.1    1688.8    9986.4    1688.4    9998.7    1688.6   10000.0    1689.1   10008.6
GR   1688.7   10017.0    1688.9   10024.9    1688.2   10033.7    1688.9   10042.8    1688.9   10043.0
GR   1688.7   10060.8    1687.6   10074.0    1688.5   10080.8    1688.2   10098.0    1687.7   10106.1
GR   1689.0   10119.5    1689.1   10143.2    1688.6   10158.1    1688.8   10172.5    1688.7   10186.5
GR   1688.6   10193.3    1687.1   10201.7    1688.4   10216.4    1688.8   10238.5    1689.3   10255.7
GR   1688.9   10272.1    1688.3   10290.3    1686.3   10301.0    1688.6   10306.4    1688.6   10329.5
GR   1689.6   10367.5    1689.5   10403.0

NC     .08       .08      .035       0.1       0.3
NH      11       .08    9900.8       .04    9906.8       .08    9944.9       .04    9968.1       .08
NH  9997.0      .035   10010.0       .08   10086.7      .035   10104.0       .08   10186.7       .04
NH  10212.       .08   10334.1
X1    1.557       41    9997.0   10104.0       400       490       449
GR   1680.5    9827.0    1680.4    9852.9    1679.9    9866.7    1679.7    9873.1    1680.5    9884.2
GR   1680.4    9900.8    1678.7    9902.1    1680.5    9906.8    1680.5    9923.8    1680.2    9944.9
GR   1679.1    9959.4    1679.4    9968.1    1679.7    9987.6    1679.9    9997.0    1678.9   10000.0
GR   1679.0   10004.0    1679.1   10007.2    1679.8   10010.0    1679.5   10025.4    1679.3   10044.0
GR   1679.7   10059.3    1679.5   10064.5    1679.7   10074.1    1679.8   10086.7    1679.7   10095.2
GR   1680.2   10104.0    1680.0   10126.8    1680.1   10143.9    1679.7   10158.7    1680.1   10173.6
GR   1679.9   10186.7    1678.1   10190.1    1679.1   10198.5    1680.3   10212.0    1680.7   10231.1
GR   1679.1   10245.3    1680.0   10263.1    1680.7   10284.3    1681.1   10301.7    1681.7   10316.4
GR   1681.9   10334.1
```

THE CONFLUENCE WITH WASH A SOUTH IS AT RIVER MILE 1.586. THE DISCHARGE IS CHANGED FROM THE VALUE BELOW THE CONFLUENCE TO THE VALUE ABOVE THE AT CROSS SECTION 1.472. (SEE SPECIAL PROBLEM NO. 4A)

```
NH       9       .08    9997.7      .035   10031.3       .08   10044.5       .04   10062.8       .08
NH  10155.      .035   10189.1       .08   10377.8       .04   10392.2       .08   10430.5
X1    1.472       40    9997.7   10189.1       545       655       554
GR   1671.9    9857.1    1671.2    9888.6    1670.5    9924.1    1670.7    9954.2    1670.1    9984.9
GR   1669.9    9997.7    1669.0   10000.0    1669.3   10011.9    1669.7   10021.4    1669.9   10031.3
GR   1669.5   10044.5    1668.8   10052.4    1669.5   10062.8    1669.6   10084.3    1669.5   10095.2
GR   1669.2   10119.1    1668.6   10137.2    1668.6   10155.0    1667.6   10158.2    1668.4   10169.0
GR   1668.4   10177.3    1667.5   10183.7    1668.4   10189.1    1669.0   10209.9    1669.0   10238.9
GR   1668.9   10241.5    1668.9   10262.1    1669.8   10287.8    1669.7   10304.8    1669.0   10322.4
1
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GR   1669.5   10330.5    1669.7   10348.7    1670.6   10360.8    1670.1   10377.8    1668.0   10382.9
GR   1668.0   10387.1    1669.2   10392.2    1669.5   10400.3    1670.1   10413.1    1670.3   10430.5

QT       1       545
NC     .08       .08       .04       0.1       0.3
X1    1.367       14    9991.0   10050.8       295       385       322
GR   1658.5   9918.79    1658.5    9918.8    1657.9    9949.1    1658.2    9964.5    1657.6    9978.0
GR   1657.3    9991.0    1656.5    9996.0    1656.6   10000.0    1656.7   10015.0    1657.2   10031.4
GR   1657.7   10050.8    1658.1   10082.4    1659.3   10107.3    1659.7   10124.7

NC     .08       .08       .04       0.1       0.3
X1    1.306       27    9990.4   10018.8       500       445       517
GR   1651.3    9853.7    1651.5    9872.8    1650.9    9894.3    1650.8    9917.4    1650.3    9935.3
GR   1650.6    9953.7    1648.5    9957.5    1650.8    9961.3    1650.6    9976.9    1650.3    9990.4
GR   1649.0    9997.3    1650.0   10000.0    1648.6   10010.4    1650.0   10018.8    1649.3   10031.8
GR   1649.3   10046.3    1649.8   10060.6    1650.0   10079.7    1648.9   10097.6    1649.7   10111.9
GR   1649.6   10125.7    1649.4   10148.9    1649.2   10166.7    1649.8   10179.7    1649.9   10186.8
GR   1649.3   10202.1    1650.2   10210.1

NH       9       .07    9984.3      .035   10009.7       .07   10100.4       .04   10113.2       .07
NH  10189.       .04   10220.3       .07   10402.2       .04   10439.3       .07   10520.8
X1    1.208       56    9984.3   10009.7       475       435       480
GR   1640.1    9869.2    1639.8    9889.4    1639.8    9907.9    1639.4    9927.4    1639.6    9948.7
GR   1639.6    9965.9    1639.7    9984.3    1636.8    9993.7    1636.9   10000.0    1637.0   10005.2
GR   1638.9   10009.7    1639.0   10017.7    1639.1   10035.1    1639.0   10059.7    1638.8   10079.3
GR   1639.0   10090.1    1638.4   10100.4    1636.4   10104.6    1638.0   10113.2    1638.7   10125.8
GR   1638.9   10140.3    1639.2   10156.7    1639.0   10175.0    1638.7   10189.     1637.3   10193.5
GR   1638.1   10209.3    1638.8   10220.3    1638.5   10233.3    1639.0   10244.8    1639.2   10259.3
GR   1638.8   10280.5    1638.7   10299.4    1637.9   10311.7    1637.0   10319.7    1638.0   10325.6
GR   1638.2   10327.0    1639.0   10335.0    1639.0   10349.6    1638.5   10365.1    1638.4   10380.6
GR   1638.4   10389.1    1638.2   10402.2    1637.8   10409.2    1636.2   10412.2    1637.7   10416.7
GR   1638.1   10422.7    1637.9   10431.4    1636.8   10435.7    1638.2   10439.3    1638.7   10452.5
GR   1638.2   10463.5    1638.6   10475.0    1638.9   10485.3    1639.0   10491.7    1639.2   10509.0
GR   1639.7   10520.8
```

AN ADDITIONAL 55 CFS FROM WASH A SOUTH ENTERS WASH A AT CROSS SECTION 1.117. (SEE SPECIAL PROBLEM NO. 1AS)

```
QT       1       600
NC     .07       .07      .035       0.1       0.3
NH       7       .07    9957.1      .035   10009.0       .07   10117.6       .04   10134.8       .07
NH  10228.       .04   10241.1       .07   10315.0
X1    1.117       30    9957.1   10009.0       655       605       671
GR   1630.0    9906.7    1630.4    9922.7    1630.2    9937.6    1630.4    9957.1    1628.9    9973.4
GR   1628.2    9982.5    1627.7    9991.9    1627.7   10000.0    1630.3   10009.0    1630.2   10023.4
GR   1630.2   10042.1    1630.2   10061.5    1629.8   10077.3    1628.9   10091.9    1628.1   10108.0
GR   1627.9   10117.6    1625.5   10127.0    1628.1   10134.8    1628.3   10144.8    1628.7   10167.0
GR   1629.2   10185.5    1629.7   10204.1    1629.1   10214.9    1627.8   10228.0    1626.3   10234.1
GR   1628.4   10241.1    1628.6   10264.2    1628.7   10283.6    1629.5   10303.4    1629.5   10315.0
1
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NC     .07       .07       .04       0.1       0.3
NH       5       .07    9748.1       .04    9802.1       .07    9986.4      .035   10066.8       .07
```

```
NH    10109.
X1     0.990        28    9986.4   10066.8       455       455       465
GR    1616.8   9728.69    1616.8    9728.7    1616.7    9748.1    1615.2    9762.7    1614.7    9769.9
GR    1615.9    9779.1    1615.1    9790.2    1614.3    9795.4    1615.9    9802.1    1615.8    9810.0
GR    1615.2    9817.3    1615.7    9832.2    1615.7    9851.8    1615.6    9872.9    1615.6    9901.2
GR    1616.3    9922.2    1616.1    9928.9    1616.2    9944.3    1615.8    9956.9    1616.1    9977.8
GR    1616.0    9986.4    1614.8    9995.0    1614.7   10000.0    1615.0   10010.0    1615.4   10025.0
GR    1615.0   10038.4    1615.8   10066.8    1616.2   10091.2    1616.1   10109.0
```

A MINOR FLOW BREAKOUT OCCURS AT THE LEFT END OF SECTION 0.902. THE ESTIMATED BREAKOUT FLOW IS SMALL AND THE FLOW IN WASH A IS NOT REDUCED. (SEE SPECIAL PROBLEM NO. 5A)

```
NH        7       .07    9752.3       .04    9820.2       .07    9898.0       .04    9914.2       .07
NH   9984.2      .035   10015.8       .07   10222.0
X1    0.902        38    9984.2   10015.8       420       420       433
GR    1606.4    9736.9    1606.2    9752.3    1605.5    9764.8    1603.8    9776.9    1605.9    9785.3
GR    1606.2    9795.8    1605.3    9809.9    1606.6    9820.2    1606.8    9840.3    1607.4    9858.3
GR    1607.4    9874.0    1607.0    9886.1    1606.1    9898.0    1604.7    9906.7    1606.1    9914.2
GR    1606.2    9926.1    1606.3    9944.0    1606.5    9962.3    1606.6    9984.2    1605.8    9991.6
GR    1605.9   10000.0    1606.0   10008.6    1606.6   10015.8    1606.4   10035.4    1606.3   10048.6
GR    1606.1   10058.1    1606.3   10066.4    1606.1   10078.2    1606.6   10096.7    1606.7   10112.9
GR    1607.0   10129.2    1606.9   10137.8    1606.5   10152.2    1606.7   10161.4    1607.2   10181.0
GR    1607.2   10184.2    1607.5   10205.6    1607.5   10222.0

NC      .07       .07       .04       0.1       0.3
NH        5       .07    9888.9       .04    9910.2       .07    9979.3       .04   10013.1       .07
NH    10117.
X1    0.820        24    9979.3   10013.1       485       520       512
GR    1598.1    9865.2    1597.9    9876.1    1597.6    9888.9    1596.5    9895.9    1596.6    9903.2
GR    1597.7    9910.2    1597.9    9925.5    1597.6    9943.5    1597.3    9963.3    1597.3    9979.3
GR    1596.7    9987.6    1596.1    9994.8    1596.2   10000.0    1596.3   10008.1    1597.2   10013.1
GR    1597.2   10025.4    1597.2   10035.5    1596.4   10044.2    1595.8   10048.7    1597.7   10061.9
GR    1598.2   10075.9    1598.2   10092.5    1598.2   10098.5    1598.1   10117.0
```

FOREST SERVICE ROAD IS AT RIVER MILE 0.718 (LOW CROSSING, NO STRUCTURE)

```
QT        1      1090
NC      .07       .07       .04       0.1       0.3
NH        7       .07    9987.7       .04   10010.8       .07   10051.8       .08   10066.0       .03
NH   10198.       .08   10222.0       .02   10283.6
X1    0.723        30    9987.7   10198.0       125        90       121
GR    1590.3    9837.8    1589.9    9859.9    1589.5    9887.8    1588.7    9922.6    1589.2    9934.9
GR    1589.9    9942.0    1588.7    9959.0    1588.4    9987.7    1586.3    9996.9    1586.2   10000.0
GR    1586.3   10002.7    1588.4   10010.8    1587.5   10023.5    1587.3   10039.2    1586.8   10051.8
GR    1585.8   10061.7    1587.0   10066.0    1586.5   10078.5    1586.0   10094.9    1585.6   10124.2
GR    1585.9   10152.4    1586.4   10172.2    1587.3   10198.0    1588.1   10222.0    1588.2   10238.6
GR    1587.8   10251.3    1588.8   10267.7    1589.8   10277.1    1589.4   10281.4    1589.3   10283.6
1
```


THE CONFLUENCE WITH WASH A SOUTH IS AT RIVER MILE 0.682. THE DISCHARGE IS NOT CHANGED FROM THE VALUE BELOW THE CONFLUENCE TO THE VALUE ABOVE THE CONFLUENCE UNTIL SECTION 0.820. (SEE SPECIAL PROBLEM NO. 6A)

```
NC      .08       .08      .035       0.1       0.3
NH        5       .08    9970.2      .035   10035.4       .08   10041.5      .035   10083.7       .08
NH    10227.
X1    0.700        28    9970.2   10083.7       195       190       222
GR    1587.5    9924.0    1587.7    9939.3    1587.6    9960.1    1587.4    9970.2    1586.4    9986.5
GR    1583.9    9996.3    1583.8   10000.0    1584.1   10007.0    1585.6   10012.4    1586.0   10025.7
GR    1587.5   10035.4    1588.0   10041.5    1584.7   10055.6    1584.5   10064.7    1584.6   10072.7
GR    1587.6   10083.7    1586.3   10090.8    1586.6   10115.4    1585.3   10117.7    1585.6   10125.1
GR    1585.9   10144.3    1585.6   10166.1    1585.7   10187.0    1586.1   10195.6    1586.1   10208.3
GR    1587.6   10213.0    1588.6   10221.6    1587.8   10227.0       0.0       0.0       0.0       0.0

NC      .08       .08       .04       0.1       0.3
X1    0.658        20    9981.0   10012.2       530       575       570
GR    1584.0    9878.2    1584.1    9904.0    1583.7    9927.5    1582.2    9942.8    1581.5    9962.7
GR    1582.3    9981.0    1579.3    9991.9    1579.3   10000.0    1579.3   10007.5    1581.8   10012.2
GR    1581.3   10022.0    1581.3   10049.1    1582.4   10064.8    1582.7   10080.7    1582.4   10095.0
GR    1582.8   10108.0    1582.4   10119.6    1582.4   10125.2    1583.6   10133.3    1583.6   10143.6
```

A MINOR FLOW BREAKOUT OCCURS AT THE RIGHT END OF SECTION 0.550. THE ESTIMATED BREAKOUT FLOW IS SMALL AND THE FLOW IN WASH A IS NOT REDUCED. (SEE SPECIAL PROBLEM NO. 7A)

```
QT        1      1080
NH        5       .07    9977.4       .03   10012.2       .07   10066.4       .04   10097.5       .07
NH    10237.
X1    0.550        29    9977.4   10012.2       495       460       512
GR    1572.8    9863.3    1572.8    9874.0    1572.9    9894.8    1572.7    9918.7    1571.4    9929.4
GR    1572.2    9932.4    1572.4    9958.9    1572.1    9977.4    1571.3    9988.2    1569.9    9992.9
GR    1569.9   10000.0    1570.0   10007.9    1572.2   10012.2    1571.8   10026.1    1571.7   10052.8
GR    1571.8   10066.4    1571.6   10072.3    1570.5   10084.5    1570.9   10088.2    1570.1   10091.5
GR    1571.3   10097.5    1571.2   10110.5    1571.5   10137.5    1572.0   10161.8    1571.8   10173.3
GR    1571.2   10188.5    1571.7   10206.2    1572.0   10226.4    1572.3   10237.0

NC      .07       .07       .03       0.1       0.3
NH        5       .07    9989.7       .03   10017.0       .07   10303.4       .04   10321.6       .07
NH    10414.
X1    0.453        45    9989.7   10017.0       535       525       560
GR    1564.5    9922.2    1564.5    9927.5    1564.4    9954.1    1564.1    9970.4    1563.0    9975.6
GR    1563.6    9982.8    1563.1    9989.7    1558.8    9995.3    1558.8   10000.0    1558.8   10005.9
GR    1563.6   10017.0    1564.9   10028.6    1563.6   10036.3    1563.1   10051.1    1563.2   10055.5
```

```
GR   1563.9    10074.9     1564.4    10097.6     1564.3    10116.6     1563.6    10128.3     1564.0    10140.3
GR   1564.7    10152.9     1565.0    10169.7     1565.3    10188.1     1564.6    10218.2     1564.0    10237.6
GR   1562.7    10248.5     1563.7    10254.8     1564.2    10264.8     1563.9    10280.5     1563.4    10292.1
GR   1563.8    10303.4     1563.7    10306.9     1561.0    10309.9     1561.0    10310.5     1563.7    10315.7
GR   1564.0    10321.6     1562.6    10334.3     1563.5    10339.9     1564.3    10349.8     1564.0    10364.5
GR   1564.4    10376.5     1563.9    10385.1     1564.4    10392.7     1564.7    10403.9     1564.9    10414.0
1
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X1    0.347        16      9978.9    10016.1       505       545       560
GR   1553.7     9915.7     1553.6     9940.1     1553.5    9965.2     1553.2     9978.9     1551.2     9987.4
GR   1548.1     9991.0     1547.9     9999.8     1547.8   10000.0     1547.8    10004.9     1553.1    10016.1
GR   1552.8    10028.4     1552.8    10034.5     1552.9   10050.3     1553.1    10067.5     1553.7    10071.0
GR   1552.6    10074.7       0.0       0.0        0.0       0.0        0.0       0.0        0.0       0.0

X1    0.241        13      9953.7    10049.6       305       315       317
GR   1544.4     9931.2     1543.4     9953.7     1536.9    9964.3     1536.6     9990.6     1536.2    10000.0
GR   1537.1    10014.7     1538.6    10028.9     1541.1   10049.6     1542.0    10069.3     1542.8    10083.6
GR   1542.9    10091.4     1542.7    10097.8     1542.0   10108.3       0.0       0.0        0.0       0.0

NC      .06       .06        .03       0.1        0.3
X1    0.181        16      9930.9    10021.1       440       450       459
GR   1540.3     9891.4     1539.7     9909.8     1539.6    9925.1     1539.1     9930.9     1536.4     9941.3
GR   1532.0     9956.3     1531.0     9976.3     1529.7    9982.4     1529.7    10000.0     1529.9    10003.3
GR   1540.1    10021.1     1540.7    10026.8     1539.2   10033.7     1537.2    10040.9     1536.4    10051.5
GR   1536.2    10065.4       0.0       0.0        0.0       0.0        0.0       0.0        0.0       0.0

X1    0.094        14      9954.2    10028.8       340       290       333
GR   1529.6     9905.9     1529.4     9931.4     1528.0    9941.1     1526.3     9948.7     1526.3     9954.2
GR   1518.3     9968.9     1518.5     9982.9     1518.8    9992.5     1518.2    10000.0     1518.4    10026.0
GR   1528.8    10028.8     1529.7    10036.9     1529.8   10053.3     1529.9    10061.5       0.0       0.0

NC      .07       .07        .03       0.1        0.3
X1    0.031        15      9975.4    10041.4       160       180       164
GR   1523.7     9913.6     1523.0     9922.8     1521.7    9931.9     1520.7     9940.1     1521.5     9961.5
GR   1521.4     9975.4     1510.5     9985.4     1510.6   10000.0     1510.4    10016.2     1512.9    10029.5
GR   1514.5    10039.4     1522.9    10041.4     1522.9   10056.3     1523.2    10077.3     1523.2    10086.8

NC      .08       .08       .035       0.1        0.3
X1    0.000        16      9988.0    10026.0
GR   1512.0     9970.0     1510.0     9978.5     1509.6    9988.0     1505.3     9993.9     1505.4    10000.0
GR   1505.1    10013.1     1507.0    10015.0     1508.2   10023.8     1509.0    10026.0     1507.2    10030.4
GR   1509.6    10036.4     1513.0    10046.3     1517.5   10074.7     1521.8    10085.4     1522.9    10104.7
GR   1522.6    10107.8       0.0       0.0        0.0       0.0        0.0       0.0        0.0       0.0


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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 *PROF 1
0

 CCHV=     .100 CEHV=     .300
 *SECNO 2.494
 3280 CROSS SECTION      2.49 EXTENDED       .64 FEET

 3720 CRITICAL DEPTH ASSUMED
      2.494      3.34   1800.84   1800.84   1507.00   1801.43       .59       .00       .00   1799.50
     1250.0      72.6     628.1     549.3      38.6      79.9     142.8        .0        .0   1799.80
        .00      1.88      7.86      3.85      .080      .035      .060      .000   1797.50   9924.58
    .014766        0.        0.        0.         0        21         0       .00    205.42  10130.00


 FLOW DISTRIBUTION FOR SECNO=      2.49          CWSEL=   1800.84

 STA=     9925.     9961.     9977.    10019.    10036.    10062.    10072.    10080.    10097.    10123.    10130.
   PER Q=      3.5       2.3      50.2       4.4       6.0       7.8       9.6       8.5       6.7       1.0
    AREA=     24.6      14.0      79.9      17.7      25.3      19.7      21.3      26.4      26.9       5.5
     VEL=      1.8       2.1       7.9       3.1       3.0       5.0       5.6       4.0       3.1       2.3
   DEPTH=       .7        .9       1.9       1.0       1.0       2.1       2.6       1.5       1.0        .7

 1490 NH CARD USED
 *SECNO 2.403

 3265 DIVIDED FLOW


 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.54

      2.403      1.99   1787.89   1788.26       .00   1789.18      1.30     12.17       .07   1787.60
     1100.0     377.6     427.1     295.3      69.7      32.6      59.2       2.2       2.5   1787.40
        .02      5.42     13.12      4.99      .070      .035      .055      .000   1785.90   9873.28
    .073522      445.      480.      425.         5        13         0       .00    292.09  10202.95


 FLOW DISTRIBUTION FOR SECNO=      2.40          CWSEL=   1787.89

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

STA=    9873.     9909.     9929.     9934.     9949.     9991.    10017.    10069.    10077.    10094.    10103.    10203.
  PER Q=      4.8       8.4       6.3      12.0       2.8      38.8       9.2       6.3       4.2       4.1       3.0
   AREA=     14.5      17.4       8.9      18.9      10.1      32.6      18.9       7.5       9.3       8.3      15.2
    VEL=      3.7       5.3       7.8       7.0       3.1      13.1       5.4       9.2       5.0       5.4       2.1
  DEPTH=       .4        .9       1.6       1.3        .2       1.2        .4        .9        .5        .9        .2

1490 NH CARD USED
*SECNO 2.297

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.297      2.68   1774.28   1774.28       .00   1774.72       .44     14.52      2.46   1773.30
    1100.0      71.9     645.3     382.8      39.2     100.5     111.6       4.8       6.3   1773.50
       .05      1.84      6.42      3.43      .080      .035      .048      .000   1771.60   9934.44
   .013432      530.      560.      550.        20        13         0       .00    310.00  10244.43

FLOW DISTRIBUTION FOR SECNO=      2.30          CWSEL=   1774.28

STA=    9934.     9979.     9989.    10057.    10121.    10131.    10139.    10193.    10244.
  PER Q=      4.7       1.8      58.7       5.8      16.9       5.7       4.3       2.1
   AREA=     29.5       9.7     100.5      29.1      23.6      11.9      29.1      17.9
    VEL=      1.7       2.1       6.4       2.2       7.9       5.3       1.6       1.3
  DEPTH=       .7       1.0       1.5        .5       2.5       1.4        .5        .3

1490 NH CARD USED
*SECNO 2.181

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.80

     2.181      2.08   1759.38   1759.96       .00   1761.19      1.80     13.40       .14   1758.90
    1100.0      35.8     900.8     163.3      15.1      76.2      51.6       7.5       9.5   1758.80
       .06      2.37     11.82      3.17      .080      .035      .070      .000   1757.30   9870.63
   .043552      625.      612.      575.         5         5         0       .00    170.02  10104.87
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      2.18          CWSEL=   1759.38

STA=    9871.     9968.    10017.    10053.    10086.    10105.
  PER Q=      3.3      81.9       6.7       6.1       2.1
   AREA=     15.1      76.2      22.7      20.6       8.3
    VEL=      2.4      11.8       3.2       3.2       2.8
  DEPTH=       .2       1.6        .6        .6        .4

1490 NH CARD USED
*SECNO 2.181

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.181      2.66   1759.96   1759.96       .00   1760.56       .60      7.68      7.60   1758.90
    1100.0      86.5     760.9     252.7      54.4     104.1     103.8       9.3      11.4   1758.80
       .08      1.59      7.31      2.43      .080      .035      .070      .000   1757.30   9831.68
   .010974      390.      401.      370.        20        11         0       .00    244.58  10110.85

FLOW DISTRIBUTION FOR SECNO=      2.18          CWSEL=   1759.96

STA=    9832.     9945.     9968.    10017.    10030.    10053.    10065.    10086.    10100.    10111.
  PER Q=      3.2       4.7      69.2       3.5       6.4       3.0       6.0       3.4        .7
   AREA=     29.4      25.1     104.1      15.7      27.8      13.5      25.9      15.6       5.4
    VEL=      1.2       2.1       7.3       2.5       2.5       2.5       2.5       2.4       1.5
  DEPTH=       .3       1.1       2.1       1.2       1.2       1.2       1.2       1.1        .5

CCHV=     .100 CEHV=     .300
*SECNO 2.105

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.93
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

     2.105      2.36    1749.36    1749.75       .00    1750.89       1.53       9.58        .09    1748.90
    1100.0      75.4      730.9      293.7      27.8       61.8       67.7       11.1       13.8    1749.10
       .09      2.71      11.82       4.34      .080       .035       .070       .000    1747.00    9901.12
   .094359      390.       401.       370.         6          8          0        .00     306.28   10207.40

FLOW DISTRIBUTION FOR SECNO=      2.11          CWSEL=   1749.36

STA=    9901.    9944.    9990.   10061.   10079.   10091.   10098.   10136.   10159.   10195.   10207.
  PER Q=      4.0      2.8     66.4      4.0      7.3      3.3      3.8      3.1      3.1      2.1
   AREA=     15.2     12.7     61.8     10.0     12.2      6.2     13.1      9.5     11.0      5.8
    VEL=      2.9      2.4     11.8      4.4      6.6      5.9      3.2      3.6      3.1      4.0
  DEPTH=       .4       .3       .9       .6      1.0       .9       .3       .4       .3       .5

1490 NH CARD USED
*SECNO 1.983

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     1.983      3.19    1734.99    1734.99       .00    1735.52       .52      20.80      29.03    1734.20
    1100.0     576.3      445.7       77.9     150.9       56.0      38.5       14.2       18.1    1734.10
       .13      3.82       7.95       2.03      .053       .035       .070       .000    1731.80    9805.53
   .015755      675.       644.       655.        20         14          0        .00     256.44   10086.86

FLOW DISTRIBUTION FOR SECNO=      1.98          CWSEL=   1734.99

STA=    9806.    9828.    9851.    9863.    9874.    9884.    9890.    9895.    9910.    9975.    9988.   10019.   10041.
  PER Q=      4.8      4.0      3.5      3.0      3.9      9.0      9.4      6.2      4.5      4.0     40.5      3.3
   AREA=     19.0     18.7     13.4     12.1      9.3     13.3     12.9     14.6     22.5     15.0     56.0     16.5
    VEL=      2.8      2.4      2.9      2.7      4.6      7.5      8.0      4.6      2.2      2.9      8.0      2.2
  DEPTH=       .8       .8      1.1      1.0      1.0      2.1      2.3      1.0       .3      1.1      1.8       .7

STA=   10041.   10074.   10087.
  PER Q=      3.7       .1
   AREA=     20.1      1.9
    VEL=      2.0       .7
  DEPTH=       .6       .1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


1490 NH CARD USED
*SECNO 1.887

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.66

     1.887      2.34    1722.14    1722.32       .00    1722.80       .66      12.70        .01    1722.60
    1100.0     685.6      383.1       31.4     100.9       61.4      14.3       16.7       21.5    1722.00
       .15      6.80       6.24       2.19      .045       .035       .070       .000    1719.80    9645.21
   .043454      525.       507.       505.         4         13          0        .00     320.36   10121.62

FLOW DISTRIBUTION FOR SECNO=      1.89          CWSEL=   1722.14

STA=    9645.    9651.    9657.    9662.    9668.    9675.    9690.    9709.    9872.    9883.    9938.   10070.   10122.
  PER Q=      5.4     14.6      6.3      9.0      8.3      3.2      4.6      3.6      6.4       .8     34.8      2.9
   AREA=      7.3     12.3      7.0      9.9      9.6     10.1     14.1     18.9      9.5      2.2     61.4     14.3
    VEL=      8.2     13.1      9.9     10.0      9.5      3.5      3.6      2.1      7.4      3.9      6.2      2.2
  DEPTH=      1.2      2.2      1.5      1.5      1.4       .7       .7       .1       .9       .0       .6       .3

1490 NH CARD USED
*SECNO 1.806
3280 CROSS SECTION      1.81 EXTENDED       .23 FEET

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     1.806      2.03    1712.63    1712.63       .00    1713.03       .40      11.08       8.25    1712.50
    1100.0     590.2      509.8         .0     164.6       80.0         .0       18.7       24.6    1712.60
       .17      3.59       6.37        .03      .050       .035       .070       .000    1710.60    9726.18
   .017709      415.       428.       400.        20         10          0        .00     318.90   10045.08

FLOW DISTRIBUTION FOR SECNO=      1.81          CWSEL=   1712.63
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

STA=    9726.     9765.     9785.     9802.     9805.     9810.     9813.     9861.     9898.     9927.     9934.     9942.     9978.
  PER Q=      5.0       4.1       5.5       4.1       6.9       4.4       4.2       3.1       7.6       3.3       4.6       .8
   AREA=     24.5      17.2      14.1       6.0       9.5       6.8      21.3      19.1      23.5       7.2       9.1      6.3
    VEL=      2.3       2.6       4.3       7.5       7.9       7.2       2.2       1.8       3.5       5.0       5.5      1.4
  DEPTH=       .6        .9        .8       1.9       2.0       1.8        .5        .5        .8       1.1       1.2       .2

STA=    9978.    10044.
  PER Q=     46.3
   AREA=     80.0
    VEL=      6.4
  DEPTH=      1.2

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.733

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.49

     1.733      1.80   1702.60   1702.74       .00   1703.23       .63      9.78       .02   1702.90
    1100.0    1023.6      76.4        .0     158.1      16.2        .0      20.6      27.0   1702.70
       .19      6.48      4.71       .00      .047      .035      .000      .000   1700.80   9766.44
   .039419      385.      385.      370.         3        11         0       .00    224.62  10028.54

FLOW DISTRIBUTION FOR SECNO=      1.73          CWSEL=   1702.60

STA=    9766.     9793.     9804.     9811.     9822.     9836.     9852.     9871.     9894.     9928.     9952.    10033.
  PER Q=      4.0       8.8       7.8      18.5      21.4      14.2       5.2       6.1       6.2       1.0       6.9
   AREA=     14.0      12.0       9.4      19.3      22.9      18.8      15.7      18.4      21.5       6.0      16.2
    VEL=      3.1       8.1       9.2      10.5      10.3       8.3       3.6       3.6       3.2       1.8       4.7
  DEPTH=       .5       1.1       1.4       1.7       1.6       1.2        .8        .8        .6        .2        .4

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.629

3265 DIVIDED FLOW
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     1.629      2.90   1689.20   1689.20       .00   1689.52       .32     19.72      25.28   1689.40
    1100.0      31.5      84.7     983.8      14.6      18.5     215.2      23.0       30.6   1688.90
       .22      2.16      4.59      4.57      .080      .035      .060      .000   1686.30   9924.68
   .038936      490.      549.      510.        20        18         0       .00    398.03  10352.38

FLOW DISTRIBUTION FOR SECNO=      1.63          CWSEL=   1689.20

STA=    9925.     9957.    10025.    10043.    10074.    10081.    10098.    10106.    10120.    10173.    10202.    10216.    10239.
  PER Q=      2.9       7.7       3.3       6.9       3.3       5.0       4.5       3.9       3.1       7.6      10.4       3.6
   AREA=     14.6      18.5      11.7      21.1       7.8      14.7      10.1      11.4      16.1      21.4      21.3      13.3
    VEL=      2.2       4.6       3.1       3.6       4.6       3.8       4.9       3.8       2.1       3.9       5.4       3.0
  DEPTH=       .4        .4        .7        .7       1.2        .9       1.3        .9        .3        .7       1.5        .6

STA=   10239.    10290.    10301.    10306.    10330.    10352.
  PER Q=      3.5      20.6       8.7       3.8       1.2
   AREA=     15.6      20.4       9.5      13.9       6.9
    VEL=      2.5      11.1      10.1       3.0       1.9
  DEPTH=       .3       1.9       1.8        .6        .3

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.557

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     1.557      2.31   1680.41   1680.41       .00   1680.74       .33     13.94      13.85   1679.90
    1100.0     273.2     419.1     407.7      60.6      89.8      88.4      25.0       33.7   1680.20
       .24      4.51      4.67      4.61      .054      .057      .054      .000   1678.10   9851.51
   .039983      415.      380.      330.        20        16         0       .00    366.27  10275.38

FLOW DISTRIBUTION FOR SECNO=      1.56          CWSEL=   1680.41
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

STA=    9852.    9907.    9959.    9968.    9988.    9997.   10010.   10087.   10104.   10159.   10190.   10199.   10212.
  PER Q=     4.7      6.2      7.5      5.1      1.4     13.8     19.3      5.0      3.7      6.3     15.1      5.1
   AREA=    15.8     12.4     10.1     16.7      5.7     15.9     64.4      9.6     20.5     17.6     15.2      9.5
    VEL=     3.3      5.5      8.2      3.3      2.7      9.6      3.3      5.7      2.0      3.9     11.0      5.9
  DEPTH=      .3       .2      1.2       .9       .6      1.2       .8       .6       .4       .6      1.8       .7

STA=   10212.   10263.   10275.
  PER Q=     6.6       .3
   AREA=    23.1      2.5
    VEL=     3.1      1.3
  DEPTH=      .5       .2

1490 NH CARD USED
*SECNO 1.472

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     1.472      2.29   1669.79   1669.79       .00   1670.15       .36     14.07     12.50   1669.90
    1100.0        .0     747.7     352.3        .0     137.2     114.8      27.6      37.6   1668.40
       .27       .00      5.45      3.07      .000      .035      .066      .000   1667.50   9997.99
   .024418      400.      449.      490.        20         5         0       .00    367.36  10406.39


FLOW DISTRIBUTION FOR SECNO=      1.47          CWSEL=   1669.79

STA=    9998.   10035.   10045.   10063.   10155.   10189.   10210.   10239.   10262.   10331.   10387.   10392.   10406.
  PER Q=     3.7       .1      4.5     10.3     49.3      6.3      5.1      4.9      3.7      7.9      3.5       .6
   AREA=    11.2      1.3     11.6     55.2     57.8     22.6     22.8     20.4     23.8     14.8      6.0      4.4
    VEL=     3.6       .8      4.3      2.1      9.4      3.1      2.5      2.7      1.7      5.9      6.4      1.5
  DEPTH=      .4       .1       .6       .6      1.7      1.1       .8       .9       .3       .3      1.2       .3

CCHV=     .100 CEHV=     .300
*SECNO 1.367
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     1.367      1.86   1658.36   1658.36       .00   1658.84       .47     12.19      5.64   1657.30
     545.0      46.2     477.2      21.6      28.5      81.3      15.4      30.1      41.2   1657.70
       .30      1.62      5.87      1.40      .080      .040      .080      .000   1656.50   9925.62
   .016627      545.      554.      655.        20        15         0       .00    162.28  10087.90
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      1.37          CWSEL=   1658.36

STA=    9926.    9949.    9965.    9978.    9991.   10051.   10082.   10088.
  PER Q=      .9      1.0      1.7      4.9     87.6      3.9       .1
   AREA=     5.5      4.9      6.3     11.9     81.3     14.7       .7
    VEL=      .9      1.1      1.4      2.3      5.9      1.4       .6
  DEPTH=      .2       .3       .5       .9      1.4       .5       .1

CCHV=     .100 CEHV=     .300
*SECNO 1.306

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     1.306      1.67   1650.17   1650.17       .00   1650.49       .31      9.04      5.39   1650.30
     545.0      15.9     150.2     378.9       4.9      21.9     120.8      31.2      42.8   1650.00
       .32      3.27      6.85      3.14      .080      .040      .080      .000   1648.50   9954.47
   .047716      295.      322.      385.        20        12         0       .00    224.60  10209.87


FLOW DISTRIBUTION FOR SECNO=      1.31          CWSEL=   1650.17

STA=    9954.    9960.   10019.   10032.   10046.   10061.   10098.   10112.   10126.   10149.   10167.   10180.   10202.
  PER Q=     2.9     27.6      3.3      8.6      4.9      9.4      8.5      3.5      9.0     10.6      5.0      5.3
   AREA=     4.9     21.9      6.8     12.7      8.9     18.2     12.5      7.2     15.6     15.6      8.8     11.1
    VEL=     3.3      6.9      2.6      3.7      3.0      2.8      3.7      2.6      3.1      3.7      3.1      2.6
  DEPTH=      .8       .8       .5       .9       .6       .5       .9       .5       .7       .9       .7       .5

STA=   10202.   10210.
  PER Q=     1.5
   AREA=     3.4
    VEL=     2.3
  DEPTH=      .4

1490 NH CARD USED
*SECNO 1.208
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3265 DIVIDED FLOW

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   19AUG94      09:41:44                                                                                                PAGE   18

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     1.208      2.34   1638.54   1638.54       .00   1638.89       .35      12.40      12.39   1639.70
     545.0        .0     169.7     375.3        .0      26.6      98.4       32.7       45.0   1638.90
       .35       .00      6.38      3.82      .000      .035      .045       .000    1636.20   9988.07
   .016879      500.      517.      445.        20        14         0        .00     204.69  10473.21

FLOW DISTRIBUTION FOR SECNO=      1.21          CWSEL=   1638.54

STA=    9988.   10010.   10105.   10113.   10209.   10320.   10326.   10409.   10412.   10417.   10431.   10436.   10439.
  PER Q=     31.1      4.3     12.2     12.5      5.9      3.1      3.4      5.0      8.3      5.2      5.0      3.2
   AREA=     26.6      4.9     11.5     18.3     13.4      6.1     10.6      4.6      7.1      8.5      5.1      3.7
    VEL=      6.4      4.8      5.8      3.7      2.4      2.8      1.7      5.9      6.3      3.4      5.3      4.7
  DEPTH=      1.3       .1      1.3       .2       .1      1.0       .1      1.5      1.6       .6      1.2      1.0

STA=   10439.   10473.
  PER Q=       .7
   AREA=      4.4
    VEL=       .8
  DEPTH=       .1

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.117

3265 DIVIDED FLOW

     1.117      3.18   1628.68   1628.83       .00   1629.29       .61       9.58       .03   1630.40
     600.0        .0      93.9     506.1        .0      17.7      78.8       33.8      46.8   1630.30
       .37       .00      5.30      6.43      .000      .035      .043       .000    1625.50   9976.38
   .027565      475.      480.      435.         3        11         0        .00     154.60  10277.96

FLOW DISTRIBUTION FOR SECNO=      1.12          CWSEL=   1628.68

STA=    9976.   10009.   10108.   10118.   10127.   10135.   10145.   10165.   10228.   10234.   10241.   10264.   10278.
  PER Q=     15.7       .8      2.9     29.3     22.0      1.7       .7      1.3     13.8     11.1       .7       .0
   AREA=     17.7      3.3      6.4     18.5     14.6      4.7      3.8      3.8      9.9      9.2      3.9       .5
    VEL=      5.3      1.5      2.7      9.5      9.0      2.1      1.1      2.0      8.3      7.2      1.1       .4
  DEPTH=       .7       .0       .7      2.0      1.9       .5       .2       .1      1.6      1.3       .2       .0

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO  .990

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .990      1.72   1616.02   1616.02       .00   1616.34       .32      15.38       .31   1616.00
     600.0     253.9     345.0       1.1      82.0      64.7       1.5       35.6      50.0   1615.80
       .41      3.10      5.34       .72      .049      .035      .070       .000    1614.30   9754.67
   .021147      655.      671.      605.        20        11         0        .00     278.29  10080.52

FLOW DISTRIBUTION FOR SECNO=       .99          CWSEL=   1616.02

STA=    9755.    9770.    9779.    9790.    9795.    9802.    9832.    9873.    9901.    9986.   10067.   10081.
  PER Q=      8.9      4.8      3.4      7.4      5.2      4.5      3.7      3.5       .8     57.5       .2
   AREA=     11.1      6.7      5.8      6.9      6.2     13.8     14.3     12.0      5.3     64.7      1.5
    VEL=      4.9      4.3      3.5      6.5      5.0      2.0      1.5      1.7       .9      5.3       .7
  DEPTH=       .7       .7       .5      1.3       .9       .5       .4       .4       .1       .8       .1

1490 NH CARD USED
*SECNO  .902

3265 DIVIDED FLOW

3280 CROSS SECTION       .90 EXTENDED       .12 FEET

      .902      2.73   1606.53   1606.61       .00   1606.91       .38       9.43       .01   1606.60
     600.0     525.5      54.7      19.7     101.6      14.7      16.0       37.1      52.9   1606.60
       .44      5.17      3.73      1.23      .041      .035      .070       .000    1603.80   9736.90
   .020005      455.      465.      455.         3        14         0        .00     260.83  10153.34

FLOW DISTRIBUTION FOR SECNO=       .90          CWSEL=   1606.53
```

```
STA=    9737.    9765.    9777.    9785.    9810.    9820.    9907.    9914.    9968.   10016.   10094.
  PER Q=      6.3     30.0     17.0     10.7      3.7      9.4      7.9      2.5      9.1      3.3
   AREA=     11.9     22.7     14.1     15.9      5.9     11.0      8.4     11.7     14.7     16.0
    VEL=      3.2      7.9      7.3      4.0      3.8      5.1      5.6      1.3      3.7      1.2
  DEPTH=       .4      1.9      1.7       .6       .6       .1      1.1       .2       .5       .2
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO  .820

3265 DIVIDED FLOW

      .820      2.08   1597.88   1597.88       .00   1598.29       .41      8.62       .00   1597.30
     600.0     150.3     298.7     151.0     43.7      45.8      48.0      38.4      55.0   1597.20
       .46      3.44      6.52      3.15      .048      .040      .070      .000   1595.80   9876.97
   .020667      420.      433.      420.         3        19         0       .00    187.18  10066.93

FLOW DISTRIBUTION FOR SECNO=       .82          CWSEL=   1597.88

STA=    9877.    9896.    9903.    9910.    9979.   10013.   10025.   10044.   10049.   10062.   10067.
  PER Q=      4.8     10.4      3.7      6.2     49.8      3.3      7.7      5.9      8.2       .0
   AREA=      7.5      9.7      5.1     21.4     45.8      8.4     16.3      8.0     14.9       .5
    VEL=      3.8      6.5      4.3      1.7      6.5      2.4      2.8      4.5      3.3       .6
  DEPTH=       .4      1.3       .7       .3      1.4       .7       .9      1.8      1.1       .1

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO  .723

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .54

      .723      1.65   1587.25   1587.38       .00   1587.93       .69     10.33       .03   1588.40
    1090.0        .0    1090.0       .0        .0     163.9        .0      40.1      57.1   1587.30
       .48       .00      6.65       .00      .000      .031      .000      .000   1585.60   9992.76
   .020058      485.      512.      520.         4        15         0       .00    169.44  10196.43

FLOW DISTRIBUTION FOR SECNO=       .72          CWSEL=   1587.25

STA=    9993.   10011.   10052.   10066.   10198.
  PER Q=      3.5       .3      2.9     93.3
   AREA=      9.5      2.5     13.0    139.0
    VEL=      4.1      1.1      2.5      7.3
  DEPTH=       .7       .2       .9      1.1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO  .700

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .700      2.98   1586.78   1586.78       .00   1587.35       .58      2.00       .09   1587.40
    1090.0        .0     866.9     223.1        .0     128.5     102.7      40.7      57.6   1587.60
       .49       .00      6.75      2.17      .000      .035      .080      .000   1583.80   9980.38
   .014607      125.      121.       90.        20        17         0       .00    206.49  10210.42

FLOW DISTRIBUTION FOR SECNO=       .70          CWSEL=   1586.78

STA=    9980.   10035.   10084.   10125.   10144.   10166.   10187.   10210.
  PER Q=     43.7     35.9      3.6      4.1      4.7      5.2      2.8
   AREA=     73.0     55.5     20.3     19.7     22.4     23.5     16.8
    VEL=      6.5      7.0      1.9      2.3      2.3      2.4      1.8
  DEPTH=      1.5      1.6       .5      1.0      1.0      1.1       .7

CCHV=     .100 CEHV=     .300
*SECNO  .658

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

      .658      3.44   1582.74   1583.01       .00   1583.82      1.08      3.48       .05   1582.30
    1090.0      77.0     813.0     200.0      34.7      85.2      76.5      41.7      58.5   1581.80
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      .49      2.22      9.54      2.61      .080      .040      .080      .000   1579.30   9937.26
   .018059      195.      222.      190.         4        11         0       .00    186.72  10127.51

FLOW DISTRIBUTION FOR SECNO=       .66          CWSEL=   1582.74

STA=    9937.    9963.    9981.   10012.   10022.   10049.   10081.   10128.
  PER Q=      3.9      3.1     74.6      3.0     11.4      3.2       .7
   AREA=     19.3     15.4     85.2     11.7     39.1     17.1      8.7
    VEL=      2.2      2.2      9.5      2.8      3.2      2.0       .9
  DEPTH=       .8       .8      2.7      1.2      1.4       .5       .2

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO  .550

3265 DIVIDED FLOW

3280 CROSS SECTION       .55 EXTENDED       .01 FEET

      .550      2.41   1572.31   1572.54       .00   1573.04       .73     10.68       .10   1572.10
    1080.0      10.0     516.4     553.7       7.1      55.5     163.8      44.4      61.6   1572.20
       .52      1.41      9.30      3.38      .070      .030      .056      .000   1569.90   9921.92
   .019436      530.      570.      575.         4        14         0       .00    297.41  10237.00

FLOW DISTRIBUTION FOR SECNO=       .55          CWSEL=   1572.31

STA=    9922.    9977.   10012.   10053.   10085.   10088.   10092.   10098.   10111.   10138.   10173.   10206.   10237.
  PER Q=       .9     47.8      3.3     11.2      3.9      4.2      6.3      3.9      6.9      3.2      6.7      1.6
   AREA=      7.1     55.5     19.2     26.6      6.0      6.0      9.7     13.8     25.9     18.3     27.5     11.0
    VEL=      1.4      9.3      1.9      4.6      7.1      7.5      7.0      3.1      2.9      1.9      2.6      1.6
  DEPTH=       .1      1.6       .5       .8      1.6      1.8      1.6      1.1      1.0       .5       .8       .4

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO  .453

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

      .453      4.66   1563.46   1564.34       .00   1565.37      1.90      7.56       .12   1563.10
    1080.0       2.2    1012.0      65.8       2.7      88.6      25.0      46.3      63.8   1563.60
       .53       .83     11.42      2.63      .070      .030      .047      .000   1558.80   9973.42
   .012218      495.      512.      460.         4        17         0       .00     97.62  10339.66

FLOW DISTRIBUTION FOR SECNO=       .45          CWSEL=   1563.46

STA=    9973.    9990.   10017.   10311.   10340.
  PER Q=       .2     93.7      3.0      3.1
   AREA=      2.7     88.6     13.4     11.5
    VEL=       .8     11.4      2.4      2.9
  DEPTH=       .2      3.3       .0       .4

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO  .347

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.59

      .347      3.80   1551.60   1552.63       .00   1554.93      3.33     10.30       .14   1553.20
    1080.0        .0    1080.0       .0        .0      73.8        .0      47.5      64.6   1553.10
       .54       .00     14.64       .00      .000      .033      .000      .000   1547.80   9985.68
   .030913      535.      560.      525.         5        10         0       .00     27.25  10012.94

FLOW DISTRIBUTION FOR SECNO=       .35          CWSEL=   1551.60

STA=    9986.   10016.
  PER Q=     100.0
   AREA=      73.8
    VEL=      14.6
  DEPTH=       2.7

*SECNO  .241

3301 HV CHANGED MORE THAN HVINS

      .241      2.34   1538.54   1538.96       .00   1540.12      1.58     14.28       .52   1543.40
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    1080.0        .0    1080.0        .0        .0     107.0        .0      48.7      65.2   1541.10
       .56        .00     10.09       .00      .000      .029      .000      .000   1536.20   9961.62
   .021404       505.      560.      545.         5        19         0       .00     66.71  10028.34

FLOW DISTRIBUTION FOR SECNO=       .24          CWSEL=   1538.54

STA=    9962.    9964.   10015.   10029.
  PER Q=        .5     97.2      2.3
   AREA=       2.2     95.0      9.8
    VEL=       2.4     11.1      2.5
  DEPTH=        .8      1.9       .7

CCHV=      .100 CEHV=      .300
1
   19AUG94      09:41:44                                                                                PAGE   24

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO  .181
      .181       3.02   1532.72   1533.03        .00   1534.24       1.52       5.87        .02   1539.10
    1080.0         .0    1080.0        .0        .0     109.1         .0       49.5       65.6   1540.10
       .57        .00      9.90       .00      .000      .030      .000      .000   1529.70   9953.87
   .016160       305.      317.      315.         4        11         0       .00     54.34  10008.21

FLOW DISTRIBUTION FOR SECNO=       .18          CWSEL=   1532.72

STA=    9954.   10021.
  PER Q=     100.0
   AREA=     109.1
    VEL=       9.9
  DEPTH=       2.0

*SECNO  .094

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.69

      .094       1.63   1519.83   1520.60        .00   1522.44       2.61      11.69        .11   1526.30
    1080.0         .0    1080.0        .0        .0      83.3         .0       50.5       66.2   1528.80
       .58        .00     12.96       .00      .000      .030      .000      .000   1518.20   9966.09
   .045965       440.      459.      450.         6        15         0       .00     60.29  10026.38

FLOW DISTRIBUTION FOR SECNO=       .09          CWSEL=   1519.83

STA=    9966.   10029.
  PER Q=     100.0
   AREA=      83.3
    VEL=      13.0
  DEPTH=       1.4

CCHV=      .100 CEHV=      .300
*SECNO  .031

3301 HV CHANGED MORE THAN HVINS
1
   19AUG94      09:41:44                                                                                PAGE   25

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .53

      .031       2.93   1513.33   1513.52        .00   1514.75       1.42       7.33        .36   1521.40
    1080.0         .0    1080.0        .0        .0     113.0         .0       51.3       66.6   1522.90
       .59        .00      9.56       .00      .000      .030      .000      .000   1510.40   9982.80
   .012854       340.      333.      290.         3        14         0       .00     49.35  10032.15

FLOW DISTRIBUTION FOR SECNO=       .03          CWSEL=   1513.33

STA=    9983.   10041.
  PER Q=     100.0
   AREA=     113.0
    VEL=       9.6
  DEPTH=       2.3

CCHV=      .100 CEHV=      .300
*SECNO  .000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.70
```

.000	3.32	1508.42	1509.30	.00	1511.27	2.85	3.34	.14	1509.60
1080.0	.0	1071.0	9.0	.0	78.8	3.7	51.6	66.8	1509.00
.59	.00	13.59	2.45	.000	.035	.080	.000	1505.10	9989.62
.037056	160.	164.	180.	6	11	0	.00	40.83	10033.46

FLOW DISTRIBUTION FOR SECNO= .00 CWSEL= 1508.42

STA=	9990.	10026.	10030.	10033.
PER Q=	99.2	.4	.4	
AREA=	78.8	1.8	1.9	
VEL=	13.6	2.4	2.5	
DEPTH=	2.3	.4	.6	

THIS RUN EXECUTED 19AUG94 09:41:50

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2: May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

WASH A

SUMMARY PRINTOUT

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	SSTA	ENDST	QLOB	QROB	ELTRD
*	2.494	1797.50	1800.84	1250.00	7.86	.00	205.42	3.34	9924.58	10130.00	72.56	549.34	.00
*	2.403	1785.90	1787.89	1100.00	13.12	-12.96	292.09	1.99	9873.28	10202.95	377.56	295.30	.00
*	2.297	1771.60	1774.28	1100.00	6.42	-13.60	310.00	2.68	9934.44	10244.43	71.89	382.84	.00
*	2.181	1757.30	1759.38	1100.00	11.82	-14.90	170.02	2.08	9870.63	10104.87	35.84	163.33	.00
*	2.181	1757.30	1759.96	1100.00	7.31	.58	244.58	2.66	9831.68	10110.85	86.48	252.66	.00
*	2.105	1747.00	1749.36	1100.00	11.82	-10.60	306.28	2.36	9901.12	10207.40	75.37	293.75	.00
*	1.983	1731.80	1734.99	1100.00	7.95	-14.36	256.44	3.19	9805.53	10086.86	576.32	77.95	.00
*	1.887	1719.80	1722.14	1100.00	6.24	-12.85	320.36	2.34	9645.21	10121.62	685.56	31.37	.00
*	1.806	1710.60	1712.63	1100.00	6.37	-9.51	318.90	2.03	9726.18	10045.08	590.18	.00	.00
*	1.733	1700.80	1702.60	1100.00	4.71	-10.03	224.62	1.80	9766.44	10028.54	1023.62	.00	.00
*	1.629	1686.30	1689.20	1100.00	4.59	-13.40	398.03	2.90	9924.68	10352.38	31.45	983.82	.00
*	1.557	1678.10	1680.41	1100.00	4.67	-8.80	366.27	2.31	9851.51	10275.38	273.22	407.69	.00
*	1.472	1667.50	1669.79	1100.00	5.45	-10.62	367.36	2.29	9997.99	10406.39	.00	352.29	.00
*	1.367	1656.50	1658.36	545.00	5.87	-11.42	162.28	1.86	9925.62	10087.90	46.19	21.58	.00
*	1.306	1648.50	1650.17	545.00	6.85	-8.19	224.60	1.67	9954.47	10209.87	15.88	378.91	.00
*	1.208	1636.20	1638.54	545.00	6.38	-11.64	204.69	2.34	9988.07	10473.21	.00	375.30	.00
	1.117	1625.50	1628.68	600.00	5.30	-9.86	154.60	3.18	9976.38	10277.96	.00	506.06	.00

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	SSTA	ENDST	QLOB	QROB	ELTRD
*	.990	1614.30	1616.02	600.00	5.34	-12.65	278.29	1.72	9754.67	10080.52	253.87	1.11	.00
	.902	1603.80	1606.53	600.00	3.73	-9.50	260.83	2.73	9736.90	10153.34	525.53	19.73	.00
	.820	1595.80	1597.88	600.00	6.52	-8.65	187.18	2.08	9876.97	10066.93	150.28	150.98	.00
*	.723	1585.60	1587.25	1090.00	6.65	-10.63	169.44	1.65	9992.76	10196.43	.00	.00	.00
*	.700	1583.80	1586.78	1090.00	6.75	-.47	206.49	2.98	9980.38	10210.42	.00	223.08	.00
	.658	1579.30	1582.74	1090.00	9.54	-4.03	186.72	3.44	9937.26	10127.51	76.98	200.03	.00
	.550	1569.90	1572.31	1080.00	9.30	-10.43	297.41	2.41	9921.92	10237.00	9.95	553.68	.00
	.453	1558.80	1563.46	1080.00	11.42	-8.85	97.62	4.66	9973.42	10339.66	2.24	65.76	.00
*	.347	1547.80	1551.60	1080.00	14.64	-11.86	27.25	3.80	9985.68	10012.94	.00	.00	.00
	.241	1536.20	1538.54	1080.00	10.09	-13.06	66.71	2.34	9961.62	10028.34	.00	.00	.00
	.181	1529.70	1532.72	1080.00	9.90	-5.83	54.34	3.02	9953.87	10008.21	.00	.00	.00
*	.094	1518.20	1519.83	1080.00	12.96	-12.89	60.29	1.63	9966.09	10026.38	.00	.00	.00

```
*      .031   1510.40   1513.33   1080.00      9.56     -6.49     49.35      2.93   9982.80  10032.15       .00       .00       .00
*      .000   1505.10   1508.42   1080.00     13.59     -4.91     40.83      3.32   9989.62  10033.46       .00      9.03       .00
1
   19AUG94      09:41:44                                                                                                   PAGE   28


 SUMMARY OF ERRORS AND SPECIAL NOTES

 CAUTION SECNO=      2.494  PROFILE=  1  CRITICAL DEPTH ASSUMED

 WARNING SECNO=      2.403  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=      2.297  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      2.297  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=      2.297  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=      2.181  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=      2.181  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      2.181  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=      2.181  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=      2.105  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=      1.983  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      1.983  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=      1.983  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=      1.887  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=      1.806  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      1.806  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=      1.806  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=      1.733  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=      1.629  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      1.629  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=      1.629  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION SECNO=      1.557  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      1.557  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=      1.557  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION SECNO=      1.472  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      1.472  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=      1.472  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION SECNO=      1.367  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      1.367  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=      1.367  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION SECNO=      1.306  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      1.306  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=      1.306  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION SECNO=      1.208  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      1.208  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=      1.208  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
1
   19AUG94      09:41:44                                                                                                   PAGE   29


 CAUTION SECNO=       .990  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=       .990  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=       .990  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=       .723  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=       .700  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=       .700  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=       .700  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=       .347  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=       .094  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=       .031  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=       .000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

WASH A SOUTH

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    19AUG94    TIME   09:19:57 *
 *****************************************
```

```
*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                  X     X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
```


THIS RUN EXECUTED 19AUG94 09:19:57

```
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************
```

```
T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3      WASH A SOUTH              L. CULLER - (602)244-8100
T4      JOB 15183    PR15183\ETC\WASHA\SCWAAS.IH2          RUN 1
T5      SUPERCRITICAL FLOW
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2		1	-1				1507	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	-1		-1							15

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

38	42	1	43	26	51	4	8	53	54
13	15	40							

QT	1	1100								
NC	.08	.08	.035	0.1	0.3					
NH	11	.08	9814.1	.04	9820.1	.08	9858.2	.04	9881.4	.08
NH	9910.3	.035	9923.3	.08	10000.0	.035	10017.3	.08	10100.0	.04
NH	10125.	.08	10247.4							
X1	0.867	41	10000.0	10017.3	400	490	454			
GR	1680.5	9740.3	1680.4	9766.2	1679.9	9780.0	1679.7	9786.4	1680.5	9797.5
GR	1680.4	9814.1	1678.7	9815.4	1680.5	9820.1	1680.5	9837.1	1680.2	9858.2
GR	1679.1	9872.7	1679.4	9881.4	1679.7	9900.9	1679.9	9910.3	1678.9	9913.3
GR	1679.0	9917.3	1679.1	9920.5	1679.8	9923.3	1679.5	9938.7	1679.3	9957.3
GR	1679.7	9972.6	1679.5	9977.8	1679.7	9987.4	1679.8	10000.0	1679.7	10008.5
GR	1680.2	10017.3	1680.0	10040.1	1680.1	10057.2	1679.7	10072.0	1680.1	10086.9
GR	1679.9	10100.0	1678.1	10103.4	1679.1	10111.8	1680.3	10125.0	1680.7	10144.4
GR	1679.1	10158.6	1680.0	10176.4	1680.7	10197.6	1681.1	10215.0	1681.7	10229.7
GR	1681.9	10247.4								

THE CONFLUENCE WITH WASH A IS AT RIVER MILE 0.896. THE DISCHARGE IS CHANGED FROM THE VALUE BELOW THE CONFLUENCE TO THE VALUE ABOVE THE CONFLUENCE AT CROSS SECTION 0.774. (SEE SPECIAL PROBLEM NO. 4A)

NH	9	.08	9820.4	.035	9854.0	.08	9867.2	.04	9885.5	.08
NH	9977.7	.035	10011.8	.08	10200.5	.04	10214.9	.08	10253.2	
X1	0.774	40	9820.4	10011.8	565	505	486			
GR	1671.9	9679.8	1671.2	9711.3	1670.5	9746.8	1670.7	9776.9	1670.1	9807.6
GR	1669.9	9820.4	1669.0	9822.7	1669.3	9834.6	1669.7	9844.1	1669.9	9854.0
GR	1669.5	9867.2	1668.8	9875.1	1669.5	9885.5	1669.6	9907.0	1669.5	9917.9
GR	1669.2	9941.8	1668.6	9959.9	1668.6	9977.7	1667.6	9980.9	1668.4	9991.7
GR	1668.4	10000.0	1667.5	10006.4	1668.4	10011.8	1669.0	10032.6	1669.0	10061.6
GR	1668.9	10064.2	1668.9	10084.8	1669.8	10110.5	1669.7	10127.5	1669.0	10145.1
GR	1669.5	10153.2	1669.7	10171.4	1670.6	10183.5	1670.1	10200.5	1668.0	10205.6
GR	1668.0	10209.8	1669.2	10214.9	1669.5	10223.0	1670.1	10235.8	1670.3	10253.2
QT	1	545								
NH	5	.08	9994.3	.035	10015.3	.08	10153.2	.04	10171.4	.08
NH	10274.									
X1	0.682	29	9994.3	10015.3	415	410	438			
GR	1659.7	9886.27	1659.7	9886.28	1659.7	9886.29	1659.7	9886.3	1659.5	9898.4
GR	1658.7	9910.5	1659.0	9926.3	1658.9	9935.4	1658.4	9962.9	1657.8	9987.5
GR	1657.7	9994.3	1655.4	10000.0	1655.5	10003.5	1657.5	10015.3	1657.7	10032.0
GR	1657.8	10052.2	1657.5	10078.3	1657.8	10100.8	1657.5	10118.1	1657.0	10138.1
GR	1657.0	10140.2	1657.2	10153.2	1656.4	10159.2	1656.4	10165.5	1657.6	10171.4
GR	1657.5	10193.6	1658.1	10219.4	1658.9	10248.5	1659.4	10274.0		

```
NC      .08       .08      .035       0.1       0.3
X1    0.599        19    9983.7   10020.5       495       440       459
GR   1649.5   9942.89    1649.5    9942.9    1648.7    9951.1    1647.4    9958.1    1649.0    9961.8
GR   1649.3    9968.2    1648.7    9983.7    1648.2    9998.7    1646.9   10000.0    1646.9   10006.3
GR   1647.0   10013.1    1648.0   10020.5    1648.6   10039.4    1648.6   10056.5    1648.4   10073.8
GR   1649.0   10087.6    1649.7   10102.5    1650.3   10116.3    1651.2   10127.4
```

FLOW BREAKOUTS OCCUR AT BOTH ENDS OF THIS SECTION. RATING CURVES FOR THIS SECTION AND BOTH DIVIDES WERE DEVELOPED AND SUMMED TO DETERMINE THAT 55 CFS AND 25 CFS EXITS WASH A SOUTH ON THE LEFT AND RIGHT SIDES, RESPECTIVELY. THE LEFT SIDE BREAKOUT ENTERS WASH A. THE FLOW IN WASH A SOUTH IS REDUCED TO 465 CFS. (SEE SPECIAL PROBLEM NO. 1AS)

```
QT        1       465
NC      .07       .07       .04       0.1       0.3
X1    0.512        15    9995.4   10020.3       470       515       533
GR   1639.7    9989.3    1639.1    9995.4    1636.9   10000.0    1637.0   10005.6    1637.6   10012.2
GR   1638.9   10020.3    1639.5   10032.3    1639.7   10034.9    1639.8   10052.1    1639.5   10066.2
GR   1639.3   10081.7    1639.1   10089.8    1639.4   10104.7    1639.9   10120.3    1639.9   10133.1

QT        1       490
NH        5       .07    9899.7       .04    9930.3       .07    9991.8       .03   10032.9       .02
NH    10049.
X1    0.411        17    9991.8   10032.9       545       565       544
GR   1629.9    9861.1    1629.8    9880.0    1629.9    9899.7    1628.5    9905.6    1628.4    9913.5
GR   1628.8    9923.0    1630.1    9930.3    1630.2    9946.7    1629.6    9958.3    1630.2    9967.8
GR   1630.3    9978.6    1630.3    9991.8    1626.8   10000.0    1626.8   10014.5    1629.0   10025.3
GR   1630.6   10032.9    1630.4   10049.0       0.0       0.0       0.0       0.0       0.0       0.0
```



```
NC      .07       .02       .03       0.1       0.3
NH        5       .07    9945.4       .04    9958.5       .07    9993.8       .03   10025.4       .02
NH    10056.
X1    0.308        20    9993.8   10025.4       505       505       533
GR   1619.1   9932.77    1619.1    9932.78   1619.1    9932.79   1619.1    9932.8    1619.2    9937.5
GR   1617.2    9945.4    1616.6    9949.8    1615.4    9955.6    1617.7    9958.5    1618.4    9968.2
GR   1618.9    9982.9    1619.0    9993.8    1616.0   10000.0    1616.2   10014.9    1616.2   10020.2
GR   1618.4   10025.4    1617.9   10029.8    1619.1   10039.9    1619.1   10053.2    1618.9   10056.0

NC      .07       .07       .03       0.1       0.3
X1    0.207        16    9993.2   10051.9       445       415       454
GR   1607.5   9993.18    1607.5    9993.19   1607.5    9993.2    1605.4   10000.0    1605.4   10005.0
GR   1605.5   10013.9    1606.1   10015.4    1606.2   10023.5    1605.7   10035.9    1606.3   10040.7
GR   1607.3   10051.9    1606.8   10070.6    1606.5   10072.3    1607.1   10089.0    1607.7   10112.9
GR   1607.8   10123.1

NC      .07       .02       .03       0.1       0.3
X1    0.121        16    9986.8   10036.9       525       490       491
GR   1598.7   9902.67    1598.7    9902.68   1598.7    9902.69   1598.7    9902.7    1598.4    9928.1
GR   1598.5    9956.2    1598.5    9979.6    1598.5    9986.8    1595.8    9991.8    1595.2   10000.0
GR   1595.5   10009.5    1595.9   10011.8    1597.1   10014.4    1597.9   10023.2    1598.5   10036.9
GR   1598.4   10038.9       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
```

FOREST SERVICE ROAD IS AT RIVER MILE 0.022 (LOW CROSSING, NO STRUCTURE)

```
QT        1      1090
NC      .08       .02       .03       0.1       0.3
NH        7       .07    9835.3       .04    9858.4       .07    9899.4       .08    9913.6       .03
NH    10045.       .08   10069.6       .02   10131.2
X1    0.028        30    9835.3   10045.0       125        90       121
GR   1590.3    9685.4    1589.9    9707.5    1589.5    9735.4    1588.7    9770.2    1589.2    9782.5
GR   1589.9    9789.6    1588.7    9806.6    1588.4    9835.3    1586.3    9844.5    1586.2    9847.6
GR   1586.3    9850.3    1588.4    9858.4    1587.5    9871.1    1587.3    9886.8    1586.8    9899.4
GR   1585.8    9909.3    1587.0    9913.6    1586.5    9926.1    1586.0    9942.5    1585.6    9971.8
GR   1585.9   10000.0    1586.4   10019.8    1587.3   10045.0    1588.1   10069.6    1588.2   10086.2
GR   1587.8   10098.9    1588.8   10115.3    1589.8   10124.7    1589.4   10129.0    1589.3   10131.2
```

THE CONFLUENCE WITH WASH A IS AT RIVER MILE 0.000. THE DISCHARGE IS NOT CHANGED FROM THE VALUE BELOW THE CONFLUENCE TO THE VALUE ABOVE THE CONFLUENCE UNTIL SECTION 0.121. (SEE SPECIAL PROBLEM NO. 6A)

```
NC      .08       .08      .035       0.1       0.3
NH        5       .08    9905.5      .035    9970.7       .08    9976.8      .035   10019.0       .08
NH    10162.
X1    0.016        28    9905.5   10019.0       195       190       222
GR   1587.5    9859.3    1587.7    9874.6    1587.6    9895.4    1587.4    9905.5    1586.4    9921.8
GR   1583.9    9931.6    1583.8    9935.3    1584.1    9942.3    1585.6    9947.7    1586.0    9961.0
GR   1587.5    9970.7    1588.0    9976.8    1584.7    9990.9    1584.5   10000.0    1584.6   10008.0
GR   1587.6   10019.0    1586.3   10026.1    1586.6   10050.7    1585.3   10053.0    1585.6   10060.4
GR   1585.9   10079.6    1585.6   10101.4    1585.7   10122.3    1586.1   10130.9    1586.1   10143.6
```



```
GR   1587.6   10148.3    1588.6   10156.9    1587.8   10162.0       0.0       0.0       0.0       0.0

NC      .08       .08       .04       0.1       0.3
X1    0.658        20    9981.0   10012.2
GR   1584.0    9878.2    1584.1    9904.0    1583.7    9927.5    1582.2    9942.8    1581.5    9962.7
GR   1582.3    9981.0    1579.3    9991.9    1579.3   10000.0    1579.3   10007.5    1581.8   10012.2
GR   1581.3   10022.0    1581.3   10049.1    1582.4   10064.8    1582.7   10080.7    1582.4   10095.0
GR   1582.8   10108.0    1582.4   10119.6    1582.4   10125.2    1583.6   10133.3    1583.6   10143.6
```

```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1
0

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO  .867

3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED
     .867      2.30   1680.40   1680.40   1507.00   1680.74       .34       .00       .00   1679.80
   1100.0     640.9      54.2     404.8     139.8       9.5      87.3        .0        .0   1680.20
      .00      4.59      5.72      4.64      .058      .035      .054      .000   1678.10   9766.21
  .040528        0.        0.        0.         0        76         0       .00    362.78  10188.51

FLOW DISTRIBUTION FOR SECNO=       .87          CWSEL=   1680.40

STA=    9766.    9820.    9873.    9881.    9901.    9913.    9917.    9921.    9939.    9957.    9973.    9987.   10000.
  PER Q=     4.6      6.2      7.5      5.1      3.6      5.8      4.1      5.2      6.3      4.4      3.5      2.1
   AREA=    15.6     12.3     10.0     16.6      8.6      5.8      4.3     14.2     18.6     13.8     11.8      8.2
    VEL=     3.3      5.5      8.2      3.4      4.6     10.9     10.4      4.0      3.7      3.5      3.2      2.8
  DEPTH=      .3       .2      1.1       .8       .7      1.4      1.3       .8      1.0       .9       .8       .6

STA=   10000.   10017.   10072.   10103.   10112.   10125.   10176.   10189.
  PER Q=     4.9      3.6      6.3     15.1      4.9      6.5       .3
   AREA=     9.5     20.2     17.4     15.1      9.2     22.9      2.4
    VEL=     5.7      2.0      4.0     11.0      5.9      3.1      1.3
  DEPTH=      .5       .4       .6      1.8       .7       .4       .2

1490 NH CARD USED
*SECNO  .774

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     .774      2.29   1669.79   1669.79       .00   1670.15       .36     13.85     12.44   1669.90
   1100.0        .0     747.3     352.7        .0     137.9     115.6       2.6       3.8   1668.40
      .03       .00      5.42      3.05      .000      .035      .066      .000   1667.50   9820.68
  .024112      400.      454.      490.        20         5         0       .00    368.61  10229.17
```



```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=       .77          CWSEL=   1669.79

STA=    9821.    9858.    9867.    9886.    9978.   10012.   10033.   10062.   10085.   10153.   10210.   10215.   10229.
  PER Q=     3.7       .1      4.5     10.4     49.2      6.3      5.1      5.0      3.7      7.9      3.5       .6
   AREA=    11.4      1.4     11.7     55.5     58.0     22.7     22.9     20.5     24.1     14.9      6.1      4.5
    VEL=     3.6       .8      4.3      2.1      9.3      3.1      2.5      2.7      1.7      5.8      6.4      1.5
  DEPTH=      .4       .1       .6       .6      1.7      1.1       .8       .9       .4       .3      1.2       .3

1490 NH CARD USED
*SECNO  .682

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.92

     .682      2.55   1657.95   1658.11       .00   1658.60       .64     11.52       .03   1657.70
    545.0       1.5     285.8     257.7       1.8      33.8      91.7       4.7       7.3   1657.50
      .05       .82      8.46      2.81      .080      .035      .058      .000   1655.40   9981.46
  .021889      565.      486.      505.         3        11         0       .00    231.38  10212.84

FLOW DISTRIBUTION FOR SECNO=       .68          CWSEL=   1657.95

STA=    9981.    9994.   10015.   10078.   10138.   10153.   10159.   10166.   10171.   10213.
  PER Q=      .3     52.4      3.9      8.2      5.9      7.6     13.2      5.4      3.2
   AREA=     1.8     33.8     17.6     25.8     13.0      6.9      9.7      5.6     13.1
    VEL=      .8      8.5      1.2      1.7      2.5      6.0      7.4      5.2      1.3
  DEPTH=      .1      1.6       .3       .4       .9      1.1      1.5       .9       .3

CCHV=     .100 CEHV=     .300
*SECNO  .599

3265 DIVIDED FLOW

     .599      2.29   1649.19   1649.33       .00   1649.89       .70      8.70       .01   1648.70
    545.0      35.0     418.3      91.7      16.2      55.2      45.7       5.9       9.0   1648.00
      .07      2.16      7.57      2.01      .080      .035     .080*      .000   1646.90   9946.12
  .018925      415.      438.      410.         4        11         0       .00    140.04  10091.55
```

```
FLOW DISTRIBUTION FOR SECNO=      .60          CWSEL=    1649.19

1
   19AUG94     09:19:57                                                                                                  PAGE    7

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=    9946.    9951.     9958.     9962.     9966.     9984.    10021.    10039.    10057.    10074.    10088.    10092.
  PER Q=           .2       4.0       1.6        .0        .6      76.8       7.2       3.3       4.3       1.9        .0
   AREA=          1.2       7.9       3.6        .4       3.0      55.2      16.7      10.0      11.9       6.7        .4
    VEL=          1.0       2.8       2.4        .5       1.0       7.6       2.4       1.8       2.0       1.6        .5
  DEPTH=           .2       1.1       1.0        .1        .2       1.5        .9        .6        .7        .5        .1

CCHV=     .100 CEHV=      .300
*SECNO  .512

3265 DIVIDED FLOW

       .512       2.78    1639.68    1640.04        .00    1640.71       1.03       9.14        .03    1639.10
      465.0        2.3      426.6       36.1        1.7       50.2       22.2        6.9       10.3    1638.90
        .09       1.34       8.50       1.63       .070       .040       .070       .000    1636.90    9989.56
    .021290       495.       459.       440.          4          8          0        .00     100.27   10113.26


FLOW DISTRIBUTION FOR SECNO=      .51          CWSEL=    1639.68

STA=    9990.    9995.    10020.    10032.    10035.    10066.    10082.    10090.    10105.    10113.
  PER Q=           .5      91.8       2.3        .0        .1       1.2       1.6       2.4        .2
   AREA=          1.7      50.2       5.7        .2        .7       4.3       3.8       6.3       1.2
    VEL=          1.3       8.5       1.9        .6        .6       1.3       1.9       1.7        .8
  DEPTH=           .3       2.0        .5        .1        .0        .3        .5        .4        .1

1490 NH CARD USED
*SECNO  .411

3265 DIVIDED FLOW

       .411       2.23    1629.03    1629.39        .00    1630.27       1.24      10.42        .02    1630.30
      490.0       28.7      461.3         .0        9.3       50.3         .0        7.7       11.2    1630.60
        .10       3.08       9.18        .00       .040       .030       .000       .000    1626.80    9903.38
    .018273       470.       533.       515.          5         11          0        .00      51.53   10025.43


FLOW DISTRIBUTION FOR SECNO=      .41          CWSEL=    1629.03

STA=    9903.    9906.     9914.     9923.     9924.    10033.
  PER Q=           .2       3.2       2.4        .0      94.1
   AREA=           .6       4.6       4.1        .1      50.3
    VEL=          2.0       3.5       2.8       1.2       9.2
  DEPTH=           .3        .6        .4        .1       1.6

1
   19AUG94     09:19:57                                                                                                  PAGE    8

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


CCHV=     .100 CEHV=      .300
1490 NH CARD USED
*SECNO  .308

3265 DIVIDED FLOW

       .308       2.36    1617.76    1618.10        .00    1618.98       1.22      11.28        .01    1619.00
      490.0      122.6      367.4         .0       18.0       38.9         .0        8.4       11.8    1618.40
        .12       6.80       9.45        .00       .040       .030       .000       .000    1615.40    9943.22
    .023712       545.       544.       565.          4         11          0        .00      43.51   10023.87


FLOW DISTRIBUTION FOR SECNO=      .31          CWSEL=    1617.76

STA=    9943.    9945.     9950.     9956.     9959.     9959.    10025.
  PER Q=           .2       3.9      17.0       3.9        .0      75.0
   AREA=           .6       3.8      10.2       3.5        .0      38.9
    VEL=          1.4       5.1       8.2       5.5        .0       9.4
  DEPTH=           .3        .9       1.8       1.2        .0       1.4

CCHV=     .100 CEHV=      .300
*SECNO  .207

3265 DIVIDED FLOW

       .207       1.79    1607.19    1607.38        .00    1607.99        .80      10.87        .13    1607.50
      490.0         .0      476.0       14.0         .0       65.3       10.2        9.2       12.6    1607.30
        .14        .00       7.29       1.37       .000       .030       .070       .000    1605.40    9994.22
    .017971       505.       533.       505.          4         15          0        .00      92.51   10092.36


FLOW DISTRIBUTION FOR SECNO=      .21          CWSEL=    1607.19

STA=    9994.   10052.    10071.    10072.    10089.    10092.
  PER Q=         97.1        .5        .3       2.0        .0
   AREA=         65.3       2.8        .9       6.4        .1
```

```
   VEL=      7.3       .9      1.9      1.5       .3
 DEPTH=      1.2       .1       .5       .4       .0

CCHV=     .100 CEHV=     .300
1
   19AUG94      09:19:57                                                                                                PAGE    9

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO  .121

3301 HV CHANGED MORE THAN HVINS

      .121       2.41   1597.61   1598.06       .00   1599.07       1.47       8.85       .07   1598.50
     490.0         .0     490.0       .0        .0      50.4         .0        9.9      13.2   1598.50
       .15        .00      9.71       .00      .000      .030       .000       .000   1595.20   9988.45
   .021258       445.      454.      415.         5        14          0        .00     31.53  10019.98

FLOW DISTRIBUTION FOR SECNO=       .12          CWSEL=   1597.61

STA=    9988.   10037.
  PER Q=    100.0
   AREA=     50.4
    VEL=      9.7
  DEPTH=      1.6

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO  .028

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .46

      .028       1.61   1587.21   1587.38       .00   1587.96        .75      10.90       .21   1588.40
    1090.0         .0    1090.0       .0        .0     156.8         .0       11.1      14.3   1587.30
       .17        .00      6.95       .00      .000      .031       .000       .000   1585.60   9840.54
   .022645       525.      491.      490.         4        19          0        .00    166.37  10042.32

FLOW DISTRIBUTION FOR SECNO=       .03          CWSEL=   1587.21

STA=    9841.    9858.    9899.    9914.   10045.
  PER Q=      3.5       .2      2.9     93.4
   AREA=      8.9      2.1     12.4    133.4
    VEL=      4.2      1.1      2.5      7.6
  DEPTH=       .7       .2       .9      1.0

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   19AUG94      09:19:57                                                                                                PAGE   10

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO  .016

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .016       2.98   1586.78   1586.78       .00   1587.35        .58       2.12       .11   1587.40
    1090.0         .0     866.9     223.1        .0     128.5      102.7       11.6      14.8   1587.60
       .18        .00      6.75      2.17      .000      .035       .080       .000   1583.80   9915.68
   .014607       125.      121.       90.        20        17          0        .00    206.49  10145.72

FLOW DISTRIBUTION FOR SECNO=       .02          CWSEL=   1586.78

STA=    9916.    9971.   10019.   10060.   10080.   10101.   10122.   10146.
  PER Q=     43.7     35.9      3.6      4.1      4.7      5.2      2.8
   AREA=     73.0     55.5     20.3     19.7     22.4     23.5     16.8
    VEL=      6.5      7.0      1.9      2.3      2.3      2.4      1.8
  DEPTH=      1.5      1.6       .5      1.0      1.0      1.1       .7

CCHV=     .100 CEHV=     .300
*SECNO  .658

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

      .658       3.44   1582.74   1583.01       .00   1583.82       1.08       3.48       .05   1582.30
    1090.0       77.0     813.0     200.0      34.7      85.2       76.5       12.6      15.7   1581.80
       .19       2.22      9.54      2.61      .080      .040       .080       .000   1579.30   9937.26
```

.018059	195.	222.	190.	4	11	0	.00	186.72	10127.51

FLOW DISTRIBUTION FOR SECNO= .66 CWSEL= 1582.74

STA=	9937.	9963.	9981.	10012.	10022.	10049.	10081.	10128.
PER Q=	3.9	3.1	74.6	3.0	11.4	3.2	.7	
AREA=	19.3	15.4	85.2	11.7	39.1	17.1	8.7	
VEL=	2.2	2.2	9.5	2.8	3.2	2.0	.9	
DEPTH=	.8	.8	2.7	1.2	1.4	.5	.2	

THIS RUN EXECUTED 19AUG94 09:20:00

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

WASH A SOUTH

SUMMARY PRINTOUT

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	SSTA	ENDST	QLOB	QROB	ELTRD
*	.867	1678.10	1680.40	1100.00	5.72	.00	362.78	2.30	9766.21	10188.51	640.93	404.83	.00
*	.774	1667.50	1669.79	1100.00	5.42	-10.61	368.61	2.29	9820.68	10229.17	.00	352.69	.00
*	.682	1655.40	1657.95	545.00	8.46	-11.83	231.38	2.55	9981.46	10212.84	1.47	257.71	.00
	.599	1646.90	1649.19	545.00	7.57	-8.77	140.04	2.29	9946.12	10091.55	35.00	91.68	.00
	.512	1636.90	1639.68	465.00	8.50	-9.51	100.27	2.78	9989.56	10113.26	2.25	36.10	.00
	.411	1626.80	1629.03	490.00	9.18	-10.65	51.53	2.23	9903.38	10025.43	28.72	.00	.00
	.308	1615.40	1617.76	490.00	9.45	-11.26	43.51	2.36	9943.22	10023.87	122.60	.00	.00
	.207	1605.40	1607.19	490.00	7.29	-10.58	92.51	1.79	9994.22	10092.36	.00	14.00	.00
	.121	1595.20	1597.61	490.00	9.71	-9.58	31.53	2.41	9988.45	10019.98	.00	.00	.00
*	.028	1585.60	1587.21	1090.00	6.95	-10.40	166.37	1.61	9840.54	10042.32	.00	.00	.00
*	.016	1583.80	1586.78	1090.00	6.75	-.43	206.49	2.98	9915.68	10145.72	.00	223.08	.00
	.658	1579.30	1582.74	1090.00	9.54	-4.03	186.72	3.44	9937.26	10127.51	76.98	200.03	.00

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= .867 PROFILE= 1 CRITICAL DEPTH ASSUMED

CAUTION SECNO= .774 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= .774 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= .774 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO= .682 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= .028 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= .016 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= .016 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= .016 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

WASH F

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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    19AUG94    TIME   09:53:11 *
 *****************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                  X     X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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1
   19AUG94      09:53:11                                                                    PAGE    1


                                                                THIS RUN EXECUTED 19AUG94    09:53:11
 *************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
 *************************************


T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 93-06
T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3      WASH F                                  L. CULLER - (602)244-8100
T4      JOB 15183   PR15183\ETC\ WASHF\SCWASHF.IH2       RUN 1
T5      SUPERCRITICAL FLOW

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                2                   1        -1                                    1660

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     -1                  -1                                                                     15

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38        42         1        43        26        51         4         8        53        54
     13        15        40

QT        1       610
NC      .07       .07      .035       0.1       .03
X1     .961         9    9973.9   10020.4       550       555       549
GR   1663.7    9944.1    1663.6    9959.6    1663.0    9973.9    1659.9    9987.9    1659.4   10000.0
GR   1659.5   10017.4    1662.9   10020.4    1663.2   10032.5    1663.5   10049.3

NC      .08       .08      .035        .1        .3
X1     .856        12    9976.2   10017.7       340       355       348
GR   1650.5   9968.19    1650.5    9968.2    1649.9    9976.2    1648.1    9987.1    1648.1   10000.0
GR   1648.4   10013.4    1651.2   10017.7    1650.7   10033.1    1651.2   10051.0    1651.5   10073.9
GR   1651.6   10096.7    1651.6   10113.1       0.0       0.0       0.0       0.0       0.0       0.0

        SECTION 0.790 FLOODED AREA IS SHOWN AS SPLIT FLOODED AREA
        WITHOUT THE FLOW OR THE PROFILE BEING CALCULATED FOR THE SPLIT CHANNEL
        SEE SPECIAL PROBLEM NO. F1

NH        5       .08    9976.7      .035   10009.7       .08   10126.2       .04   10160.6       .08
NH   10175.
X1     .790        22    9976.7   10009.7       550       560       565
GR   1642.7    9925.6    1642.9    9942.6    1641.9    9954.4    1640.4    9968.0    1640.8    9976.7
GR   1639.6    9983.8    1639.4    9995.0    1639.5   10000.0    1640.4   10009.7    1641.6   10023.1
GR   1643.6   10032.2    1643.9   10046.8    1643.9   10064.1    1643.2   10076.4    1642.9   10093.8
GR   1641.7   10105.9    1641.9   10119.6    1641.4   10126.2    1640.0   10139.7    1639.5   10149.7
GR   1642.4   10160.6    1642.4   10175.0
1
   19AUG94      09:53:11                                                                    PAGE    2


        SECTION 0.683 FLOODED AREA IS SHOWN AS SPLIT FLOODED AREA
        WITHOUT THE FLOW OR THE PROFILE BEING CALCULATED FOR THE SPLIT CHANNEL
        SEE SPECIAL PROBLEM NO. F2

NH        5       .07    9811.2       .04    9853.5       .07    9971.5      .035   10017.5       .07
NH   10104.
X1     .683        30    9971.5   10017.5       510       590       602
GR   1629.1   9801.07    1629.1   9801.08    1629.1   9801.09    1629.1    9801.1    1629.0    9811.2
GR   1626.7    9827.9    1626.8    9838.9    1626.6    9848.1    1628.7    9853.5    1628.7    9865.5
GR   1628.6    9870.4    1628.0    9877.0    1629.4    9886.4    1629.6    9908.8    1630.0    9930.7
GR   1629.7    9955.0    1629.0    9971.5    1627.9    9986.6    1627.0    9998.8    1626.9   10000.0
GR   1626.8   10012.6    1628.6   10017.5    1628.6   10027.2    1627.4   10038.9    1628.0   10051.4
GR   1628.9   10065.2    1629.8   10076.8    1630.2   10088.7    1629.5   10094.9    1630.3   10104.0

NH        5       .08    9932.4       .04    9954.3       .08    9993.5       .04   10015.8       .07
NH   10133.
```

```
X1     .569        25     9993.5   10015.8       435       480       470
GR   1616.1   9885.07     1616.1    9885.08    1616.1   9885.09    1616.1    9885.1    1615.6    9898.7
GR   1614.3    9912.7     1613.6     9926.1    1613.7    9932.4    1612.3    9934.9    1612.1    9946.6
GR   1612.0    9954.3     1612.6     9964.9    1613.1    9986.3    1613.1    9993.5    1612.2   10000.0
GR   1612.5   10008.7     1613.7    10015.8    1613.6   10028.6    1614.6   10036.5    1614.4   10047.2
GR   1615.4   10060.0     1616.1    10076.7    1616.7   10095.8    1617.6   10115.2    1618.3   10133.0

        SECTION 0.480 CONTOURS ARE ALTERED FROM STA. 9875.8 TO STA. 9919.2
        TO REFLECT EFFECTIVE FLOW CONDITIONS - SEE SPECIAL PROBLEM NO. F3

NH        5       .08     9942.7       .04    9958.4       .08    9966.8       .04   10021.0       .07
NH   10034.
X1     .480        20     9966.8   10021.0       470       450       475
GR   1604.0    9875.8     1604.0     9880.5    1604.0    9890.0    1604.0    9893.0    1602.2    9919.2
GR   1602.2    9931.1     1601.8     9942.7    1600.5    9950.8    1600.7    9954.1    1602.4    9958.4
GR   1602.9    9966.8     1602.1     9975.6    1601.1    9978.9    1601.3    9985.7    1602.2    9990.5
GR   1601.2    9997.9     1601.2    10000.0    1601.0   10014.5    1605.5   10021.0    1607.0   10034.0

        FOREST SERVICE ROAD IS AT RIVER MILE 0.385 (LOW CROSSING, NO STRUCTURE)

NH        5       .08     9907.9       .04    9945.9       .08    9973.5       .04   10028.5       .07
NH   10112.
X1     .390        22     9973.5   10028.5        85        85        85
GR   1592.0   9876.69     1592.0     9876.7    1591.4    9887.7    1590.0    9895.7    1590.2    9907.9
GR   1588.5    9920.7     1588.4     9931.5    1588.6    9938.5    1590.0    9945.9    1589.8    9959.9
GR   1589.5    9973.5     1587.8     9989.7    1587.6    9997.8    1587.6   10000.0    1587.7   10005.5
GR   1588.7   10015.1     1589.5    10028.5    1590.2   10051.6    1591.3   10073.4    1593.2   10091.1
GR   1593.9   10098.1     1594.3    10112.0
1
   19AUG94      09:53:11                                                                          PAGE    3

NH        5       .08     9921.9       .04    9951.2       .08    9980.6       .04   10017.8       .07
NH   10024.
X1     .374        16     9980.6   10017.8       340       385       364
GR   1590.7    9875.6     1589.2     9897.0    1588.0    9906.6    1587.6    9921.9    1586.0    9929.5
GR   1585.8    9938.8     1586.1     9947.9    1587.3    9951.2    1587.2    9965.0    1587.1    9980.6
GR   1586.2    9987.3     1585.5     9992.7    1585.3   10000.0    1585.6   10011.9    1587.7   10017.8
GR   1587.7   10024.0

NC      .08       .08       .04        0.1        0.3
X1     .305        13     9962.7   10015.7       610       530       581
GR   1583.6    9928.6     1583.4     9938.6    1582.8    9953.4    1581.5    9962.7    1578.4    9975.3
GR   1577.7    9980.0     1576.2     9985.1    1576.2   10000.0    1576.4   10008.4    1578.8   10015.7
GR   1579.6   10034.2     1580.2    10048.4    1580.2   10053.8

NC      .07       .08      .045        0.1        0.3
X1     .195        13     9981.0   10028.7       425       575       528
GR   1570.4    9913.2     1565.8     9928.4    1567.7    9941.7    1565.2    9954.6    1564.5    9959.7
GR   1565.2    9969.1     1562.4     9981.0    1559.3    9996.7    1559.0   10000.0    1559.0   10015.7
GR   1559.2   10023.3     1561.8    10028.7    1562.6   10038.9

NC      .08       .08      .050        0.1        0.3
X1     .095        15     9902.9   10037.2       540       490       502
GR   1560.0    9838.9     1558.9     9845.8    1554.2    9863.2    1547.6    9878.2    1545.7    9883.9
GR   1545.7    9902.9     1544.7     9914.3    1544.3    9930.0    1544.4    9945.8    1544.6    9962.0
GR   1543.4    9973.3     1543.1     9991.6    1542.6   10000.0    1542.7   10023.3    1562.7   10037.2

NC      .08       .08      .055        0.1        0.3
X1     .000        12     9927.4   10048.4
GR   1536.3    9907.1     1536.3     9907.1    1535.3    9927.4    1525.6    9934.2    1525.6    9958.8
GR   1525.6    9977.2     1526.0    10000.0    1525.8   10037.0    1535.3   10048.4    1535.1   10067.3
GR   1535.9   10079.2     1535.9    10092.3


1
   19AUG94      09:53:11                                                                          PAGE    4

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1
0

 CCHV=     .100 CEHV=     .030
 *SECNO  .961
 3720 CRITICAL DEPTH ASSUMED
      .961      2.39   1661.79   1661.79   1660.00   1662.76       .97       .00       .00   1663.00
     610.0        .0     610.0        .0        .0      77.1        .0        .0        .0   1662.90
       .00       .00      7.91       .00      .000      .035      .000      .000   1659.40   9979.35
   .015127        0.        0.        0.         0        22         0       .00     40.07  10019.42

 FLOW DISTRIBUTION FOR SECNO=       .96          CWSEL=   1661.79

 STA=    9979.   10020.
   PER Q=     100.0
    AREA=      77.1
     VEL=       7.9
   DEPTH=       1.9

 CCHV=     .100 CEHV=     .300
 *SECNO  .856
      .856      1.96   1650.06   1650.43       .00   1651.52      1.46     11.19       .05   1649.90
```

```
     610.0        .1     609.9        .0        .2      62.8        .0        .9        .5   1651.20
       .02       .56      9.71       .00      .080      .035      .000      .000   1648.10   9974.19
   .028970      550.      549.      555.         4         8         0       .00     41.75  10015.94

FLOW DISTRIBUTION FOR SECNO=       .86          CWSEL=   1650.06

STA=    9974.    9976.   10018.
  PER Q=        .0     100.0
   AREA=        .2      62.8
    VEL=        .6       9.7
  DEPTH=        .1       1.6

1490 NH CARD USED
*SECNO  .790

3265 DIVIDED FLOW
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3301 HV CHANGED MORE THAN HVINS

       .790      1.85   1641.25   1641.46       .00   1642.15       .90      9.20       .17   1640.80
     610.0       17.3     412.5     180.1       8.9      48.5      32.2       1.5       1.0   1640.40
       .03      1.96      8.50      5.60      .080      .035      .041      .000   1639.40   9960.33
   .024113      340.      348.      355.         4         8         0       .00     87.39  10156.26

FLOW DISTRIBUTION FOR SECNO=       .79          CWSEL=   1641.25

STA=    9960.    9968.    9977.   10010.   10019.   10140.   10150.   10156.
  PER Q=        .9       2.0      67.6      1.1       5.1      18.5      4.8
   AREA=       3.2       5.6      48.5      4.0       7.5      15.0      5.7
    VEL=       1.6       2.2       8.5      1.6       4.2       7.5      5.2
  DEPTH=        .4        .6       1.5       .4        .1       1.5       .9

1490 NH CARD USED
*SECNO  .683

3265 DIVIDED FLOW

       .683      1.79   1628.39   1628.49       .00   1629.05       .65     13.03       .08   1629.00
     610.0      336.2     241.6      32.3      49.5      37.7      14.6       2.7       2.3   1628.60
       .05      6.79      6.40      2.21      .040      .035      .070      .000   1626.60   9815.62
   .022483      550.      565.      560.         3         8         0       .00    109.26  10057.40

FLOW DISTRIBUTION FOR SECNO=       .68          CWSEL=   1628.39

STA=    9816.    9828.    9839.    9848.    9853.    9880.   10018.   10051.   10057.
  PER Q=        8.4      22.9      20.2      3.3        .2      39.6      5.1       .2
   AREA=       10.4      18.1      15.6      4.1       1.4      37.7     13.4      1.2
    VEL=        5.0       7.8       7.9      4.9       1.1       6.4      2.3      1.1
  DEPTH=        .8       1.6       1.7       .9        .1       1.0       .4       .2

1490 NH CARD USED
*SECNO  .569
       .569      1.75   1613.75   1613.82       .00   1614.37       .62     14.67       .01   1613.10
     610.0      439.8     169.1       1.1      73.4      24.0       1.4       4.0       3.7   1613.70
       .08      5.99      7.05       .79      .053      .040      .070      .000   1612.00   9923.20
   .033039      510.      602.      590.         3         5         0       .00    106.60  10029.80
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=       .57          CWSEL=   1613.75

STA=    9923.    9947.    9954.    9965.    9986.    9994.   10016.   10030.
  PER Q=       28.6      20.7      10.9     10.0       2.0      27.7       .2
   AREA=       20.9      13.1      15.4     19.3       4.7      24.0      1.4
    VEL=        8.4       9.6       4.3      3.2       2.5       7.1       .8
  DEPTH=        .9       1.7       1.5       .9        .7       1.1       .1

1490 NH CARD USED
*SECNO  .480

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
       .480      2.28   1602.78   1602.78       .00   1603.31       .53     12.02       8.17   1602.90
     610.0      236.0     374.0        .0      45.2      60.0        .0       5.0        4.7   1605.50
       .10      5.23      6.24       .00      .046      .040      .000      .000   1600.50   9910.79
   .022002      435.      470.      480.        20        11         0       .00    102.87  10017.07
```

```
FLOW DISTRIBUTION FOR SECNO=       .48          CWSEL=   1602.78

STA=    9911.    9943.    9951.    9954.    9958.    9965.   10021.
  PER Q=      6.1     16.3     10.9      5.2       .2     61.3
   AREA=     18.3     13.2      7.2      5.3      1.2     60.0
    VEL=      2.0      7.6      9.2      6.0       .9      6.2
  DEPTH=       .6      1.6      2.2      1.2       .2      1.2

1490 NH CARD USED
*SECNO  .390

3265 DIVIDED FLOW

      .390      1.92   1589.52   1589.70       .00   1590.32       .80     12.97       .03   1589.50
     610.0     157.2     452.8        .0      24.5      60.9        .0       6.1       5.8   1589.50
       .12      6.42      7.43       .00      .040      .040      .000      .000   1587.60   9913.12
   .035034      470.      475.      450.         3        11         0       .00     85.74  10028.74
```



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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=       .39          CWSEL=   1589.52

STA=    9913.    9921.    9932.    9939.    9943.   10029.
  PER Q=      2.7     13.5      8.1      1.4     74.2
   AREA=      3.8     11.4      7.1      2.2     60.9
    VEL=      4.4      7.2      7.0      4.1      7.4
  DEPTH=       .5      1.1      1.0       .5      1.1

1490 NH CARD USED
*SECNO  .374
      .374      2.10   1587.40   1587.46       .00   1588.05       .65      2.22       .04   1587.10
     610.0     220.4     389.6        .0      40.2      55.8        .0       6.2       5.9   1587.70
       .12      5.49      6.98       .00      .041      .040      .000      .000   1585.30   9922.84
   .020242       85.       85.       85.         2         8         0       .00     94.12  10016.96

FLOW DISTRIBUTION FOR SECNO=       .37          CWSEL=   1587.40

STA=    9923.    9930.    9939.    9948.    9951.    9965.    9981.   10018.
  PER Q=      3.1     15.9     14.7      1.5       .3       .7     63.9
   AREA=      4.7     14.0     13.2      2.3      2.1      3.9     55.8
    VEL=      4.1      6.9      6.8      4.0       .8      1.1      7.0
  DEPTH=       .7      1.5      1.5       .7       .2       .3      1.5

CCHV=     .100 CEHV=     .300
*SECNO  .305

3301 HV CHANGED MORE THAN HVINS

      .305      2.32   1578.52   1578.70       .00   1579.70      1.18      8.30       .05   1581.50
     610.0        .0     610.0        .0        .0      70.0        .0       6.9       6.5   1578.80
       .13       .00      8.71       .00      .000      .040      .000      .000   1576.20   9974.84
   .026563      340.      364.      385.         3        11         0       .00     39.99  10014.83

FLOW DISTRIBUTION FOR SECNO=       .31          CWSEL=   1578.52

STA=    9975.   10016.
  PER Q=    100.0
   AREA=     70.0
    VEL=      8.7
  DEPTH=      1.8
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

CCHV=     .100 CEHV=     .300
*SECNO  .195
      .195      2.19   1561.19   1561.38       .00   1562.36      1.17     17.33       .00   1562.40
     610.0        .0     610.0        .0        .0      70.2        .0       7.9       7.0   1561.80
       .15       .00      8.69       .00      .000      .045      .000      .000   1559.00   9987.12
   .033742      610.      581.      530.         4         8         0       .00     40.32  10027.44

FLOW DISTRIBUTION FOR SECNO=       .19          CWSEL=   1561.19

STA=    9987.   10029.
  PER Q=    100.0
   AREA=     70.2
    VEL=      8.7
  DEPTH=      1.7

CCHV=     .100 CEHV=     .300
*SECNO  .095
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3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .095      2.06   1544.66   1544.66       .00   1545.17       .51     19.00      3.83   1545.70
     610.0        .0     610.0        .0        .0     106.8        .0       8.9       7.9   1562.70
       .18       .00      5.71       .00      .000      .050      .000      .000   1542.60   9915.84
   .038446      425.      528.      575.        20        11         0       .00    108.83  10024.66

FLOW DISTRIBUTION FOR SECNO=       .09          CWSEL=   1544.66

STA=    9916.   10037.
  PER Q=    100.0
   AREA=    106.8
    VEL=      5.7
  DEPTH=      1.0

CCHV=     .100 CEHV=     .300
*SECNO  .000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .000      1.18   1526.78   1526.78       .00   1527.29       .51     20.75      8.28   1535.30
     610.0        .0     610.0        .0        .0     106.5        .0      10.2       9.2   1535.30
       .20       .00      5.73       .00      .000      .055      .000      .000   1525.60   9933.38
   .044575      540.      502.      490.        20        11         0       .00    104.80  10038.17

FLOW DISTRIBUTION FOR SECNO=       .00          CWSEL=   1526.78

STA=    9933.   10048.
  PER Q=    100.0
   AREA=    106.5
    VEL=      5.7
  DEPTH=      1.0

1
   19AUG94      09:53:11                                                                                PAGE   10


                                                                                THIS RUN EXECUTED 19AUG94    09:53:12
************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

WASH F

SUMMARY PRINTOUT
```

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	SSTA	ENDST	QLOB	QROB	ELTRD
*	.961	1659.40	1661.79	610.00	7.91	.00	40.07	2.39	9979.35	10019.42	.00	.00	.00
	.856	1648.10	1650.06	610.00	9.71	-11.73	41.75	1.96	9974.19	10015.94	.09	.00	.00
	.790	1639.40	1641.25	610.00	8.50	-8.81	87.39	1.85	9960.33	10156.26	17.35	180.12	.00
	.683	1626.60	1628.39	610.00	6.40	-12.85	109.26	1.79	9815.62	10057.40	336.15	32.26	.00
	.569	1612.00	1613.75	610.00	7.05	-14.64	106.60	1.75	9923.20	10029.80	439.77	1.10	.00
*	.480	1600.50	1602.78	610.00	6.24	-10.97	102.87	2.28	9910.79	10017.07	236.04	.00	.00
	.390	1587.60	1589.52	610.00	7.43	-13.26	85.74	1.92	9913.12	10028.74	157.17	.00	.00
	.374	1585.30	1587.40	610.00	6.98	-2.12	94.12	2.10	9922.84	10016.96	220.45	.00	.00
	.305	1576.20	1578.52	610.00	8.71	-8.88	39.99	2.32	9974.84	10014.83	.00	.00	.00
	.195	1559.00	1561.19	610.00	8.69	-17.33	40.32	2.19	9987.12	10027.44	.00	.00	.00
*	.095	1542.60	1544.66	610.00	5.71	-16.53	108.83	2.06	9915.84	10024.66	.00	.00	.00
*	.000	1525.60	1526.78	610.00	5.73	-17.88	104.80	1.18	9933.38	10038.17	.00	.00	.00

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1
   19AUG94      09:53:11                                                                                PAGE   11
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SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=       .961  PROFILE=  1  CRITICAL DEPTH ASSUMED

CAUTION SECNO=       .480  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       .480  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=       .480  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=       .095  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       .095  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=       .095  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=       .000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       .000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=       .000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
```

WASH I

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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    19AUG94    TIME   09:57:31 *
 *****************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                  X     X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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THIS RUN EXECUTED 19AUG94 09:57:31

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
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T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT 93-06
T2      RIO VERDE NORTH FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE, INC.
T3      WASH I                                L. CULLER - (602)244-8100
T4      JOB 15183   PR15183\ETC\WASHI\SCWASHI.IH2   RUN  1
T5      SUPERCRITICAL FLOW

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                2                   1        -1                                    1507

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     -1                  -1                                                                     15

J3  VARIABLE CODES FOR SUMMARY PRINTOUT
     38        42         1        43        26        51         4         8        53        54
     13        15        40

QT        1      1350
NH        3       .07    9942.9       .04   10021.1       .07   10114.6
X1     .625        18    9942.9   10021.1       445       445       444
GR    1658.1   9907.99   1658.1    9908.0    1657.5    9915.4    1653.9    9924.6    1648.4    9942.9
GR    1648.3    9958.4   1649.0    9969.4    1648.6    9988.2    1648.1    9999.5    1648.0   10000.0
GR    1648.1   10010.0   1649.3   10021.1    1650.7   10033.9    1652.0   10046.6    1652.0   10063.5
GR    1652.8   10085.4   1654.7   10103.3    1655.3   10114.6

NC      .07       .07       .04       0.1       0.3
X1     .541        16    9969.7   10036.7       415       540       475
GR    1642.5    9911.0   1642.2    9927.6    1642.1    9943.5    1639.9    9957.6    1637.7    9969.7
GR    1636.1    9977.6   1636.0    9999.2    1635.9   10000.0    1636.2   10022.2    1637.1   10036.7
GR    1636.7   10062.6   1640.5   10080.0    1643.0   10097.0    1645.1   10116.8    1646.3   10136.0
GR    1646.9   10144.3      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0

NH        5       .07    9958.7       .04   10045.1       .07   10070.4       .04   10116.4       .07
NH    10146.
X1     .451        22    9958.7   10045.1       505       440       465
GR    1629.5    9900.9   1629.5    9900.9    1629.5    9908.7    1627.4    9926.2    1625.5    9943.8
GR    1622.6    9958.7   1621.6    9974.2    1622.1    9993.9    1621.9   10000.0    1622.1   10017.5
GR    1621.9   10027.9   1622.1   10036.1    1622.4   10045.1    1623.7   10060.8    1622.9   10070.4
GR    1622.1   10082.1   1622.7   10091.5    1622.4   10103.1    1623.1   10116.4    1623.2   10132.7
GR    1629.2   10137.1   1629.9   10146.0
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NC      .07       .07       .04       0.1       0.3
X1     .363        20    9912.8   10044.9       515       445       491
GR    1615.7   9901.18   1615.7    9901.19   1615.7    9901.2    1608.1    9912.8    1608.1    9929.2
GR    1608.3    9940.8   1608.7    9949.2    1608.7    9966.3    1607.7    9985.1    1607.5    9994.3
GR    1607.5   10000.0   1607.9   10015.9    1607.7   10026.3    1607.8   10039.8    1608.5   10044.9
GR    1608.9   10059.8   1609.2   10082.2    1609.4   10095.3    1611.0   10110.5    1612.0   10121.3

NH        5       .07    9884.3       .04   10022.5       .07   10071.2       .04   10104.9       .07
NH    10117.
X1     .270        22    9884.3   10022.5       390       420       417
GR    1600.3    9833.0   1597.5    9850.0    1594.5    9864.5    1594.8    9872.5    1592.4    9884.3
GR    1591.9    9901.7   1591.9    9925.5    1592.1    9954.5    1591.3    9964.5    1591.7    9979.0
GR    1591.4   10000.0   1591.7   10013.1    1592.3   10022.5    1592.9   10030.3    1593.2   10046.8
GR    1593.4   10057.9   1593.7   10071.2    1592.9   10078.0    1591.8   10085.2    1592.1   10097.9
GR    1597.0   10104.9   1596.9   10117.0
```

FOREST SERVICE ROAD IS AT RIVER MILE 0.187 (LOW CROSSING, NO STRUCTURE)

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X1      .191        16     9918.2    10044.5        45        45        53
GR    1579.4   9918.19     1579.4     9918.2    1576.9    9927.4    1576.8    9936.2    1575.7    9945.2
GR    1575.6    9961.9     1575.7     9984.4    1575.9   10000.0    1576.4   10017.9    1577.2   10029.6
GR    1581.1   10044.5     1582.2    10061.5    1584.3   10082.7    1586.9   10101.9    1589.1   10118.9
GR    1589.1   10119.4        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0

NC      .07       .07        .04        0.1       0.3
X1      .181       25     9949.2    10038.0       535       560       554
GR    1577.9   9941.86     1577.9     9941.87   1577.9   9941.88    1577.9   9941.89    1577.9    9941.9
GR    1576.5    9949.2     1574.2     9955.0    1573.4    9965.1    1573.9    9973.6    1573.8    9983.2
GR    1573.2    9989.5     1573.7    10000.0    1574.0   10014.1    1574.8   10027.0    1575.5   10038.0
GR    1580.1   10048.1     1581.0    10055.0    1581.2   10067.2    1580.6   10074.5    1581.5   10084.1
GR    1582.3   10093.1     1583.9    10109.1    1585.4   10126.3    1588.1   10141.7    1591.6   10154.8

X1      .076       15     9932.9    10027.5       360       340       338
GR    1562.0    9913.6     1560.6     9924.5    1556.8    9932.9    1551.2    9942.6    1551.0    9956.6
GR    1550.1    9974.1     1549.4     9985.8    1549.3    9998.5    1548.9   10000.0    1549.5   10006.5
GR    1550.4   10018.0     1553.4    10027.5    1559.7   10039.0    1560.3   10044.1    1560.6   10054.9

QT         1     1530
X1      .012       14     9947.0    10048.9        45       110        63
GR    1546.9    9927.9     1548.1     9931.0    1545.7    9938.5    1539.8    9947.0    1531.5    9960.7
GR    1531.0    9979.7     1531.7     9995.5    1531.3   10000.0    1532.1   10014.1    1533.0   10024.3
GR    1534.4   10035.5     1536.2    10048.9    1538.9   10063.9    1545.4   10072.6

NC      .07       .07       .035        0.1       0.3
X1      .000       13     9963.4    10078.5
GR    1542.2    9936.4     1535.1     9952.6    1532.8    9963.4    1527.7    9972.2    1528.5    9984.6
GR    1527.0    9994.7     1527.2    10000.0    1527.1   10014.7    1526.7   10043.7    1528.7   10057.2
GR    1533.6   10078.5     1538.7    10100.9    1538.8   10114.2
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1                                                                                                    PAGE    3
   19AUG94      09:57:31

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF 1
0
 1490 NH CARD USED
 *SECNO  .625
 1553 STARTING NC CARD OMITTED
 3720 CRITICAL DEPTH ASSUMED
      .625       2.58   1650.58   1650.58   1507.00   1651.57       .99       .00       .00   1648.40
    1350.0       23.2    1310.9      15.8       7.9     162.1       7.5        .0        .0   1649.30
       .00       2.93      8.09      2.11      .070      .040      .070      .000   1648.00   9935.64
   .017979         0.        0.        0.         0        77         0       .00     97.18  10032.82

 FLOW DISTRIBUTION FOR SECNO=       .63          CWSEL=   1650.58

 STA=    9936.    9943.   10021.   10033.
   PER Q=      1.7     97.1      1.2
    AREA=      7.9    162.1      7.5
     VEL=      2.9      8.1      2.1
   DEPTH=      1.1      2.1       .6

 CCHV=     .100 CEHV=     .300
 *SECNO  .541

 3301 HV CHANGED MORE THAN HVINS

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.56

       .541       2.04   1637.94   1638.42       .00   1639.63      1.69     11.87       .07   1637.70
    1350.0         .2    1215.2     134.7        .2     111.5      30.5       1.6       1.0   1637.10
       .01       1.08     10.90      4.41      .070      .040      .070      .000   1635.90   9968.37
   .043854       445.      444.      445.         5         8         0       .00     99.92  10068.29

 FLOW DISTRIBUTION FOR SECNO=       .54          CWSEL=   1637.94

 STA=    9968.    9970.   10037.   10063.   10068.
   PER Q=       .0     90.0      9.1       .8
    AREA=       .2    111.5     27.0      3.5
     VEL=      1.1     10.9      4.6      3.2
   DEPTH=       .1      1.7      1.0       .6
```

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1                                                                                                    PAGE    4
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 1490 NH CARD USED
 *SECNO  .451

 3265 DIVIDED FLOW
```

3301 HV CHANGED MORE THAN HVINS

.451	1.99	1623.59	1623.70	.00	1624.36	.77	14.99	.28	1622.60
1350.0	5.0	1037.7	307.4	2.5	136.3	65.5	3.6	2.6	1622.40
.03	1.98	7.62	4.69	.070	.040	.044	.000	1621.60	9953.63
.022912	415.	475.	540.	3	8	0	.00	176.63	10132.98

FLOW DISTRIBUTION FOR SECNO= .45 CWSEL= 1623.59

STA=	9954.	9959.	10045.	10082.	10092.	10103.	10116.	10133.
PER Q=	.4	76.9	7.3	5.2	5.1	4.1	1.0	
AREA=	2.5	136.3	24.0	11.2	12.0	11.1	7.2	
VEL=	2.0	7.6	4.1	6.3	5.8	5.0	1.8	
DEPTH=	.5	1.6	.6	1.2	1.0	.8	.4	

CCHV= .100 CEHV= .300
*SECNO .363

.363	1.74	1609.24	1609.54	.00	1610.33	1.09	14.00	.03	1608.10
1350.0	2.6	1318.5	28.9	1.0	155.5	12.2	5.6	4.4	1608.50
.05	2.65	8.48	2.36	.070	.040	.070	.000	1607.50	9911.06
.041963	505.	465.	440.	5	8	0	.00	173.55	10084.61

FLOW DISTRIBUTION FOR SECNO= .36 CWSEL= 1609.24

STA=	9911.	9913.	10045.	10060.	10082.	10085.
PER Q=	.2	97.7	1.7	.4	.0	
AREA=	1.0	155.5	8.0	4.2	.0	
VEL=	2.6	8.5	2.9	1.4	.0	
DEPTH=	.6	1.2	.5	.2	.0	

1490 NH CARD USED
*SECNO .270

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3265 DIVIDED FLOW

.270	1.76	1593.06	1593.17	.00	1593.81	.75	16.42	.10	1592.40
1350.0	1.8	1220.5	127.7	1.1	171.5	24.2	7.6	6.4	1592.30
.07	1.66	7.12	5.28	.070	.040	.042	.000	1591.30	9881.07
.027533	515.	491.	445.	4	8	0	.00	180.50	10099.27

FLOW DISTRIBUTION FOR SECNO= .27 CWSEL= 1593.06

STA=	9881.	9884.	10023.	10098.	10099.
PER Q=	.1	90.4	9.3	.2	
AREA=	1.1	171.5	23.5	.7	
VEL=	1.7	7.1	5.3	3.3	
DEPTH=	.3	1.2	.3	.5	

*SECNO .191

3301 HV CHANGED MORE THAN HVINS

.191	1.79	1577.39	1577.80	.00	1578.89	1.51	14.84	.08	1579.40
1350.0	.0	1350.0	.0	.0	137.1	.0	9.2	7.8	1581.10
.08	.00	9.85	.00	.000	.039	.000	.000	1575.60	9925.62
.047770	390.	417.	420.	5	11	0	.00	104.69	10030.31

FLOW DISTRIBUTION FOR SECNO= .19 CWSEL= 1577.39

STA=	9926.	10018.	10045.
PER Q=	98.4	1.6	
AREA=	130.2	6.9	
VEL=	10.2	3.1	
DEPTH=	1.4	.6	

CCHV= .100 CEHV= .300
*SECNO .181

.181	2.65	1575.85	1576.00	.00	1577.01	1.16	1.78	.11	1576.50
1350.0	.0	1349.9	.1	.0	156.5	.1	9.4	7.9	1575.50
.08	.00	8.63	.98	.000	.040	.070	.000	1573.20	9950.84
.024882	45.	53.	45.	3	14	0	.00	87.92	10038.76

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= .18 CWSEL= 1575.85

STA=	9951.	10038.	10039.
PER Q=	100.0	.0	
AREA=	156.5	.1	

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   VEL=      8.6       1.0
 DEPTH=      1.8        .2

*SECNO  .076

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.81

      .076      2.56   1551.46   1552.21       .00   1554.00      2.54     22.86       .14   1556.80
    1350.0        .0    1350.0        .0        .0     105.6        .0      11.0       8.9   1553.40
      .09       .00     12.79       .00      .000      .040      .000      .000   1548.90   9942.14
   .081381      535.      554.      560.         6        11         0       .00     79.23  10021.37

FLOW DISTRIBUTION FOR SECNO=       .08          CWSEL=   1551.46

STA=    9942.   10028.
  PER Q=    100.0
   AREA=    105.6
    VEL=     12.8
  DEPTH=      1.3

*SECNO  .012

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .62

      .012      2.65   1533.65   1534.20       .00   1535.61      1.95     18.22       .18   1539.80
    1530.0        .0    1530.0        .0        .0     136.4        .0      12.0       9.5   1536.20
      .10       .00     11.22       .00      .000      .040      .000      .000   1531.00   9957.14
   .039772      360.      338.      340.         5        11         0       .00     72.42  10029.56
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=       .01          CWSEL=   1533.65

STA=    9957.   10049.
  PER Q=    100.0
   AREA=    136.4
    VEL=     11.2
  DEPTH=      1.9

CCHV=     .100 CEHV=     .300
*SECNO  .000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.50

      .000      1.90   1528.60   1529.51       .00   1531.87      3.27      3.61       .13   1532.80
    1530.0        .0    1530.0        .0        .0     105.4        .0      12.2       9.6   1533.60
      .10       .00     14.51       .00      .000      .035      .000      .000   1526.70   9970.66
   .089437       45.       63.      110.         6         8         0       .00     85.80  10056.46

FLOW DISTRIBUTION FOR SECNO=       .00          CWSEL=   1528.60

STA=    9971.   10079.
  PER Q=    100.0
   AREA=    105.4
    VEL=     14.5
  DEPTH=      1.2
```



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                                                                THIS RUN EXECUTED 19AUG94    09:57:32
 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************

 NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

 WASH I

 SUMMARY PRINTOUT

       SECNO     ELMIN     CWSEL       Q        VCH     DIFWSX    TOPWID     DEPTH     SSTA      ENDST     QLOB      QROB      ELTRD

 *      .625   1648.00   1650.58   1350.00      8.09       .00     97.18      2.58   9935.64  10032.82     23.22     15.84       .00
```

*	.541	1635.90	1637.94	1350.00	10.90	-12.64	99.92	2.04	9968.37	10068.29	.17	134.67	.00
	.451	1621.60	1623.59	1350.00	7.62	-14.35	176.63	1.99	9953.63	10132.98	4.96	307.36	.00
	.363	1607.50	1609.24	1350.00	8.48	-14.36	173.55	1.74	9911.06	10084.61	2.61	28.92	.00
	.270	1591.30	1593.06	1350.00	7.12	-16.18	180.50	1.76	9881.07	10099.27	1.76	127.70	.00
	.191	1575.60	1577.39	1350.00	9.85	-15.67	104.69	1.79	9925.62	10030.31	.00	.00	.00
	.181	1573.20	1575.85	1350.00	8.63	-1.53	87.92	2.65	9950.84	10038.76	.00	.13	.00
*	.076	1548.90	1551.46	1350.00	12.79	-24.39	79.23	2.56	9942.14	10021.37	.00	.00	.00
*	.012	1531.00	1533.65	1530.00	11.22	-17.81	72.42	2.65	9957.14	10029.56	.00	.00	.00
*	.000	1526.70	1528.60	1530.00	14.51	-5.05	85.80	1.90	9970.66	10056.46	.00	.00	.00

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SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO=	.625	PROFILE=	1	CRITICAL DEPTH ASSUMED
WARNING SECNO=	.541	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	.076	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	.012	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	.000	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

SECTION 7: COMPUTER DISKETTE

COMPUTER DISKETTE

KEY TO COMPUTER OUTPUT

File	Description
Subcritical Flow	
WASHA.IH2	Wash A Input
WASHA.OH2	Wash A Output
WASHAS2.IH2	Wash A South Input
WASHAS2.OH2	Wash A South Output
WASHF.IH2	Wash F Input
WASHF.OH2	Wash F Output
WASHI.IH2	Wash I Input
WASHI.OH2	Wash I Output
Supercritical Flow	
SCWASHA.IH2	Wash A Input
SCWASHA.OH2	Wash A Output
SCWAAS2.IH2	Wash A South Input
SCWAAS2.OH2	Wash A South Output
SCWASHF.IH2	Wash F Input
SCWASHF.OH2	Wash F Output
SCWASHI.IH2	Wash I Input
SCWASHI.OH2	Wash I Output

PLUS SPECIAL PROBLEM INPUT AND OUTPUT FILES.